The New England
Journal of Medicine

Copyright, 1944, by the Massachusetts Medical Society

Volume 231 NOVEMBER 30, 1944 Number 22

JUSTICE AND THE FUTURE OF MEDICINE*

WENDELL BERGE†

WASHINGTON, D. C.

LET me confess that I stand somewhat in awe of my subject. Justice, medicine, the future, are all mysteries about which man can know but little. My profession is the law, which aspires to, even though it does not always attain, justice; about it I know enough to be very humble in my knowledge. Your profession is medicine; about it you are far more conscious than I as to the vistas that have not been reached and the depths that have not been probed. And the future hangs on far too many things that are alien to your ship and to mine for either of us to boast that he can chart its course. If I am a layman in respect to medicine, you are laymen in regard to law. But the fact that we differ in calling and in experience is an asset. It enables us to speak our separate minds, to compare our viewpoints, to sharpen our differences, to move toward a common understanding.

The law is no mean challenge to the human understanding. Yet my admiration goes out to physicians for the greater mystery that they have set themselves to unravel. For a casual nature has spent countless aeons in putting together that bewildering organism we call man, and a process of discovery has used up millenniums in finding out enough about how the trick was done to help man over ills and aches toward health. It has taken courage, intelligence, a myriad of guinea pigs and the sacrifice of a thousand ancient truths to come as far as you have on a trail that still leads into the unknown.

For the man of which medicine is mindful is a curious and wonderful thing. A long course of cosmic, geologic and biologic events has made of him the permutation of things that anatomically he is. Nature, a slow and uncertain workman, took a fraction of eternity in which to make tries, beat retreats, blunder along its creative way. It achieved in man a result that, if nothing to brag about, is at least passable. The chances against his being here at all are as legion to one; the chance of his being exactly what he is — well, write your own odds.

But the biologic process alone did not create man, for every human being has a distinct culture stamped all over him. At work and at play he is beaten on by a continuous stream of stimuli from the human life pulsing about him. In taking care of himself, finding a way of life, begetting posterity, going on a tear, his pursuit of happiness is pent in by the prevailing culture. Man cannot exist apart from the ways and the beliefs of the folk. We are all of us products alike of the earth and of culture, and adjustment to nature and society, always in process yet never completed, is the condition of our life.

Thus the patient — a curious and stubborn bundle of organs and ailments and resistances — presents a series of enigmas that challenge the skills of the doctor. The man on whom all medicine converges is ancient in contrast to the youthful art that serves him. He was established in his anatomic estate and fitted out with his physiologic heritage long before the "physician" was so much as a word. He bears in structure and function, in organ and senses, the impress of all that the life back of him has met in the ages it has passed through. And, to complicate the problem, man is infinitely variable. The mixture of genes, chromosomes and unit characters into fresh combinations in every individual makes each of us a new experiment. In a word, the doctor's challenge is not a standardized man. My hat is off to the man of medicine for the sheer audacity of the task he has undertaken.

From the medicine man of old to the modern clinic is a long way. Again and again mystery after mystery has been probed; again and again the utterly impossible has won acceptance against ancient truth; again and again the reach of medicine has been enlarged. The doctor's craft, with triumph after triumph to its credit, is still on its way, yet it is set within a larger problem of human well-being

*Presented at the fourteenth annual meeting of the American Urological Association, St. Louis, June 21, 1944.
This address originally appeared in the November, 1944, issue of the *Journal of Urology* and is reprinted, with minor changes, by permission of the editor, Dr. Hugh H. Young.

†Assistant Attorney General of the United States.

that up to now has hardly been explored. It will not be solved until we learn to make culture in all its color and drama an instrument of health.

Institutions of some sort must be set up to serve each of the great needs of life. A people must be fed, given laws, protected against the weather, held to a moral code, provided with escapes from the dullness of everyday, fitted out with the comforts and frivolities that make life worth living. As we jog down the centuries and over the globe, the ways in which these great tasks get performed present a most kaleidoscopic picture. If the job be to appease the gods, educate the young, ward off plagues, each people has its own way of doing it. Nowhere is there a final answer; there is always bother and striving that it may be better done.

Now, the health of the people is among the mightiest of these great tasks. Yet the problem of the adequacy of medical care is unusually baffling. For it is only the exceptional person who has experienced all the arts — technical, economic, cultural — that converge in it. A beginning of understanding lies in a recognition of a distinction between the technology of medicine and its organization. By technology I mean all those arts — diagnosis, therapeutics, surgery, radiology, dentistry and the like — that constitute the profession of medicine. By organization I mean all the arrangements, social and economic, by which medical service is made available. It is idle to dispute which is the more important, for there must be a medicine to practice, and there must be some sort of arrangements for bringing physician and patient together. It is no veiled mystery to tell which is the more backward. In the advance of the arts of medicine, the medical profession has done a brilliant job. In the face of this advance it is all the more tragic that progress in the organization of medicine has lagged — and, because of this lag, the nation has not had the full benefit of the profession's superlative performance.

For backwardness in organization I am not disposed to pass out blame. But we should be quite frank in looking into reasons. One must be able to state one's problem before he can solve it, and I wonder whether a primary cause of the backwardness is not a failure clearly to put the question. Is not confusion found in attitude, in approach, at the very beginning of inquiry? To be specific, I profess no knowledge of the practice of medicine, and should I attempt to "lay down the law" as to how to treat an ailment you could — and quite properly — laugh me down. Yet as a group physicians have been little exposed to the discipline of the social sciences, and social organization is as intricate and as full of mysteries as is the art of medicine itself. So that when I hear a physician speaking about the organization of medicine in a tone of doctrinaire finality, I cannot fail to remark the contrast with the courageous and humble search for truth displayed in his own work. And when I hear the question put as a choice between "private practice" and "socialized medicine," I cannot escape noting a confusion and dogmatism strikingly different from the scientific approach. As for the "either . . . or" of private practice and socialized medicine, there is no such question. There are a myriad of schemes under which the doctor and the patient may be brought together — not a choice between just two.

Here, then, is the main reason for the great lag of organization behind art. Organization must be shaped in the full knowledge of the economic and social arts, yet it also must be shaped to the arts of medicine and the distinctive service it renders. Advance, then, depends on a range of understanding that neither you and your kind nor I and my kind alone possess. It demands a co-operation of professions that is not yet a going fact. As now we take counsel together we are not going to clear up the problem. But this is the kind of thing, multiplied a myriad of times over, out of which will some day emerge the answer to the question of justice and the future of medicine.

* * *

Down through the centuries the common law has recognized the maintenance of "the common health" as one of the great tasks of society. In Europe, and in America, there never was such a thing, strictly speaking, as "the private practice of medicine." From the earliest days the common law has made this clear. It is true that from days of old the doctor held no public office, but his service was — as the judges put it — "clothed with a public interest." At a time when any man — butcher, mercer, wheelwright, baker, fishmonger, candlestick maker — was free to enter the trade of his choice, a license was required of the doctor. To secure his right to practice the candidate had to prove his knowledge, his integrity, his skill. The physician was not free to select or to reject patients at will. As one who followed a common calling he held himself out to serve all in need to the limit of his capacity. Nor was inability to pay a valid excuse for the refusal of his service. The law recognized him as a kind of unofficial servant of the community and exempted him from the ordinary rules of the market. It wisely refused to crowd the relation of doctor and patient into the elementary forms of trade. The doctor rendered a service; the patient, if he was able, paid a fee; but the courts refused to regard the matter as a business deal.

On the contrary, the law judged the relation by reference to the norm of common health. It was recognized that the patient, unversed in the mystery, was unable to judge the quality of service. Hence the doctor, in taking a case, assumed a trust unknown in respect to trade at large. The courts steadfastly refused to bring the rights and duties of

the parties under the ordinary law of contract. And even in days when any old bargain was held valid, I have yet to discover a case in which a bungling physician was allowed to get off with a plea of *caveat emptor*.

The law went to lengths unknown elsewhere to make certain that the common health was served. In respect to the wares of trade the law of single price usually holds; a commodity is available to all who wish to purchase on exactly the same terms. To ensure adequacy of service, a special rule of law was decreed for the physician; he was permitted to charge different fees from patients differently situated. The "sliding scale," as much later it came to be called, served a definite social end. It elevated medicine above commerce, broke the pecuniary connection between the doctor's service and his reward, and gave legal recognition to the principle that persons were to be served according to their needs, that charges were to be assessed in terms of ability to pay.

Not so long ago, in my official work, the public character of the doctor's calling was vividly brought home. It is a matter of public record, so I might as well confess; I was one of the "small group of willful men" who instituted the antitrust suit of the United States against the American Medical Association. The occasion, you will recall, was a boycott by the Medical Society of the District of Columbia of certain physicians employed under a group-health plan. The society had expelled one physician, forced a second to break his contract and denied hospital facilities to their patients. Now, had the issue been between rival schools of medical practice, I, as a layman, would not have been entitled to an opinion. But both group health and the medical society stood for orthodoxy; there was no difference there. Had the question been a choice between two out of many ways of organizing medical service, I could in time have arrived at my own answer. But I should have wanted to get all the facts, examine experience critically and think hard and long before deciding. But the issue was far simpler; it was merely a question of a fair field and no favors between two rival — and it seems to me immature — plans for bringing doctors and patients together. To the members of the group, the American Medical Association seemed to be attempting to keep this type of medical care from having an opportunity to prove — or to disprove — its case, and they were convinced — the courts have now agreed with them — that the tactics were clearly illegal.

As the case went forward, this notion of medicine as the instrument of the common health was the Government's mainstay. Again and again we had occasion to recite the public character of the physician's office. There was a time when an association of doctors acted with the delegated authority of the state itself. The Royal Society of Physicians held a charter from the English Crown that conferred on it the right to license, to discipline its own members, to search for and to seize illegal drugs and otherwise as a corporate body to secure the common health. When, much later, Congress issued a charter to the Medical Society of the District of Columbia, it described its rights and obligations in words almost identical with the charter of the Royal Society. But it was careful to withhold from the new medical society all economic power over its members. It refused to confer on it authority to fix any schedule of fees for service; and, to clinch the matter, it stated that the privilege accorded was for scientific and educational work and for "no other purposes" whatever.

The same legal recognition of the public interest marked the law that converged on the case. The American Medical Association — or rather, its attorneys — argued at one time that medicine was not a trade; hence doctors, even as officers of an association, could not be guilty of restraint of trade. And at another time they claimed for the American Medical Association the immunities from antitrust that by acts of Congress have been accorded to the labor unions. If, as the *Journal of the American Medical Association* insisted, it was an insult to call medicine a trade, it is a little hard to see how dignity could be restored by calling its association a trade union. The freedom accorded the unions was intended to make possible collective bargaining with their employers, whereas here a collective bargain between physicians and their patients is just the thing the American Medical Association stood against.

But, just to get the record straight, never once in all the proceedings did the Department of Justice call medicine a trade. Instead, it lodged against the American Medical Association the charge of restraint of trade. Now, "restraint of trade," like a hundred glib medical phrases, is a term of art; one can no more than with a bit of medical nomenclature discover its meaning by looking up its verbal parts in the dictionary. And, as irony would have it, it is medicine more largely than any other calling that has given us this rule against restraint of trade. A doctor sells his practice to another doctor. He covenants that for a period of nine years and within a distance of twenty-five miles he will not engage in practice. For a reasonable time, say two years, he endures his idleness. But the itch to be up and at it grows, and sooner or later the old shingle is hung out. Then the other doctor, who has laid out good cash, becomes indignant, demands what he paid for and calls for justice. The doctor who found that it is not healthy to rust has his ready defense. Society needs his services. The contract he made is in restraint of trade, hence it is void as against public policy.

Sometimes the plaintiff wins, more often the defendant does, but always the court pits the common health against private advantage. The phy-

sician's service is of such public importance that he is not allowed by his own will and to his own advantage to swear away his right to practice. We were able to present more than one hundred cases in which the rule against restraint of trade was applied to medicine. The rule emerged, in fact, very largely out of actions of doctor versus doctor.

With the victory of the Government in the Supreme Court the case is now closed. I advert to it only because it has current significance. It is, to borrow a term from your profession, a symptom of a pathologic condition in the organization of medicine. The organization of medicine has not kept up with its technology. The fault is not individual, but institutional. The cleavage is not to be eradicated by invectives, by isolation from modern thought, by clinging stubbornly to that which was once good. It can be resolved only by an escape from folklore, a probing diagnosis, a conquest of prejudice, a drive at the very heart of the malady.

* * *

Let us briefly survey the great trends that converge on medicine, for they decree a revision of means if the great ends of the Hippocratic Oath are to be served.

First, the art of medicine has refused to stand still. The family doctor — with his bedside manner, his nostrums, his ponderous vocabulary to conceal his perplexities, his downright devotion to duty and sacrifice of self — was once the very epitome of the art of healing. He has been succeeded by the general practitioner, who is a focus to a group of specialists, of which there are now more than a score, each with what a lawyer would call its own jurisdiction. The physician's office, filled with gadgets and contraptions, has become a combination of consulting room, laboratory and miniature hospital. A number of separate shops for x-ray examinations, chemical tests and pathological checkups have become necessary adjuncts. Access to a hospital has become a requisite to the individual physician. Consultation with his fellows has grown into an essential of practice. And behind all this is medicine, which, as science and an art, is on the march. Behind medicine stand optics, physics, chemistry, biology, bacteriology. And still medicine continues to capture provinces that until recently lay beyond its frontiers.

Second, the community that the physician must serve has changed with the times. In the good old days the parson, the squire, the doctor, each held sway over his flock. Allegiance to the family doctor was a tie so firmly rooted that it took a crisis to break it. But the world no longer invites so durable, so personal, so exclusive a relation. The machine, the corporation and the pecuniary calculus have made over our work, our lives, our personal relations. Our society has become urban, industrial, gregarious. We have become a new sort of wanderers, a race of modern nomads operating a material culture.

For most of us a job has come to replace an equity in the old homestead. For most of us livings, no longer taken directly from the farm, are pent in between the wages we receive and the prices we must pay. As individuals we are as stubborn as ever our ancestors were. But we act far less on our own and far more as managers, agents, employees. Our industry is operated by corporations; our farmers band themselves into co-operatives; our workers, skilled and unskilled, gather into unions; even the great mass of our scientists make their discoveries while working for others. In our culture the group has come to be the regular thing.

Against such forces our minds cannot stand firm. Profound changes in habit, interest and value have come in their wake. The standard of living has moved to a place of primacy among our everyday concerns. It makes the costs of medical service an inescapable problem. The care of the sick can no longer be absorbed by the family; it becomes an item of expense in the budget. If it is a wage earner who is ill, there is a double cost: absence from work means loss of earnings, and bills are there to be paid. So medical service becomes a sheer economic necessity, for unless a man's capacity to work is maintained, he ceases to earn. Health thus becomes an aspect of the operation of the national economy.

And within this urban, industrial, wage-earning society, men and women are becoming increasingly conscious of what they want. Our workers demand health as a condition of their livelihoods. They insist on adequate medical service at a price they can afford to pay, and in their newly won self-respect they will refuse all charity.

Third, a changing medicine has not yet been adapted to its new world. The high objectives of the profession endure, for they are eternal, but they must be freshly applied. Our society cannot be served by an instrument designed to fit the family physician into the village community. Neither my time nor your patience will permit a prolonged analysis, yet two or three soundings will reveal the nature and contours of a very insistent problem.

In the not so long ago the old-fashioned doctor could be depended on to administer medicine for the community. He could see to it that needs were met, service was adequate and costs were justly distributed. The physician of today is in no position to discharge this office. His practice comprehends, not the whole community, but a mere fraction of it. If he is a specialist, the fraction is highly selective. And the whole body of physicians, each operating by himself, has no collective instrument by which it can apportion the totality of service in accordance with general need. Nor can it any longer take the specific responsibility of graduated charges. The sliding scale survives as a legacy from a simpler

society, and it has not yet been shaped to the circumstances of modern life. In the large cities, and even in smaller places, there is something of a trend toward fashionable. middle-class or industrial-worker practice. Here obviously the sliding scale no longer operates, for different physicians serve persons in different income groups.

It is far more serious that charges as a whole are quite out of accord with the ordinary standard of life. As medicine has advanced, its arts have become more intricate. Yet very little attention has been given toward making up-to-date facilities available at prices the common people can afford to pay. On the whole, it is not that physicians are paid too much; the statistics I have seen lead me to believe that remuneration is quite inadequate. It is rather that there is waste, a failure fully to use facilities, a lack in getting the most out of a trained personnel.

The result is a national tragedy. The rich, who do not have to consider price, are often pampered with a medical care that they may not need. Paupers are often indulged with a service that rises far above their ordinary way of life. The great middle class finds charges on the whole quite above its ability to pay. As a result, a great part of the population tries to reduce its demand for medical service to the very minimum. A great volume of cases reach the doctors in an aggravated condition that in early stages could have been easily handled. A necessary service is often secured at the cost of a heavy debt — a fact that does not make for health. And a far larger part of the people than I like to admit never become your patients.

Here, then, is challenge. The arts of medicine have advanced; the importance of medicine has been enhanced; it has become a necessity to the people and an essential in the operation of the industrial system. It has outgrown the organization into which in days of petty trade it was cast. The demand is for a vaster, more comprehensive, more reliable medical service than exists at present. If an instrument of the common health can be provided on terms the people can afford, the people will rejoice. If you do not help them to it, the people will seize on whatever agencies are at hand as a help in need. For the universal demand that the common health be served cannot much longer be stayed.

* * *

A new medical order is inevitable. Whether we shall cling to the old or create a new is not the question. The swift course of events has decreed that there can be no turning back. The question is rather what sort of medical order it is going to be, and whether it is the best that wisdom and knowledge can contrive. Like every promising venture, it has its hazards. Is it to be shaped by the best understanding that law, medicine, the social studies, can bring to it, or is it to be constructed by amateurs in ignorance but with good intentions?

I can understand how, in the face of a new venture, you wonder whether change may not fail to constitute progress. I am certain that there will be serious loss if you sit on the side lines and allow whoever may come to power to shape this new medical order.

As medicine gropes for a new organization, we all hear a lot about the doubts and fears of the profession. Many doctors are fearful lest objectives that have been hard won and that they value highly be lost. Many do not see how things that to them are essential can be fitted into a new order. Let us run through a few of the current perplexities.

A great many physicians are justly fearful that the quality of service will be compromised. From the profession I have frequently heard the argument that when the Government undertakes to look after people's health, the service rendered is invariably poor. With this insistence on quality I fully concur. Nor do I dispute the fact that the new venture may provide a service that fails to meet the standards of the profession. But I cannot follow the argument that a causal relation exists between governmental auspices and poor medicine. The truth is that a new system brings medical care to hosts of people who before have had no access to it. For them there can be no falling off in quality; there has been no service to fall off in quality. But under a new system the provision of doctors and facilities almost always falls short of the new and enlarged demand. As a result, doctors with exacting notions discover much with which they can find fault.

But let us be fair and place the blame where it belongs. The shortcomings are not necessarily due to the new system. They are probably caused by a shortage of personnel and equipment with which to work. It is hardly wise to blame untried arrangements when there is a scarcity of doctors, nurses, clinical facilities and drugs. No system can discharge its obligations if it lacks the men and materials with which to carry on.

Much is said, too, about the maintenance of a so-called "personal relation" between doctor and patient. Like the law, medicine is practiced by persons and is practiced on persons. The patient may be served by one or a number of physicians; the contact may endure for a single call, over a stretch of time or for a long period of years. But in the practice of the profession, there is no escape from a personal relation. The law has made this clear beyond a reasonable doubt. Not so long ago a declaratory judgment was sought in the District of Columbia against the Group Health Association. The action was brought in behalf of the Medical Society of the District of Columbia, which argued that a corporation could not legally engage in the practice of medicine. The Court replied that med-

icine can be practiced only by physicians and that the Group Health Association, a corporation, did no more than furnish the auspices under which physician and patient were brought together. Whatever the character of the organization, the relation is in essence personal.

An oft-repeated variant of the same theme is the insistence on the right of the patient freely to choose his physician. As a patient I am quite willing to have this right qualified for my own good. A well-recognized principle of economics has it that freedom of choice should be limited where the consumer is not a proper judge of the quality of the ware. If there is one field where freedom of choice should be qualified, it is medicine. For medicine is not one thing but many things. Its services are of a highly technical character. If we are downright honest, you and I know that the layman possesses neither the facts about the distinctive competence of particular physicians nor trustworthy norms to guide his judgment. In a matter of medicine, I am not foolish enough to trust my own choice — and a check with some of my lawyer colleagues indicates that they agree with me. I have over the years, through the devious ways by which a layman gets a little practical knowledge, discovered a physician or two whose judgment I have reason to trust. And with me it is their choice, not mine, that goes.

How many patients have walked into your office whose ailments have been aggravated by an amateur's choice of a physician? If for a moment I can be quite rash, I venture to say that in medicine, competence does not wholly accord with ability to attract patients, as in law it does not always rest on ability to attract clients. List, if you will, the six physicians in your city in whom you repose the greatest confidence. Let me, from the records of the Bureau of Internal Revenue, list the six who have the highest incomes. It is dollars to doughnuts that the lists do not match. People go to the Johns Hopkins Hospital or the Mayo Clinic not to be treated by a particular doctor but to secure skillful service. A personal choice, for that matter, can be secured even under state medicine. But far more important to the patient is the assurance of a high standard of competence.

Nor is wide-open freedom fair to the physician. He should on sheer merit advance in his profession, but in all justice his work should be judged, not by the laity, to whom medicine is still a mystery, but by men of his craft, who can distinguish brilliant from routine work. "The free choice of a physician," I fear, has become a shibboleth that will not stand analysis.

And candor compels me to say that I feel much the same about the argument that group practice robs the physician of his incentive. In its usual form it runs that if a man is on his own, he will give his best; if he works for a salary, he will put in his hours and let it go at that. The age-old traditions of your honorable profession deny the truth of such an argument. Your code of medical ethics has always elevated the relief of suffering above the pursuit of gain. Its purpose has always been to save the physician from avarice, one of the seven deadly sins. It has long been a canon of yours that service is to be given to rich and poor alike, that quality is not to be tempered to the ability of the patient to pay. My limited experience indicates — and a number of colleagues to whom I have put the question concur — that the mightiest urge to which the physician responds is the pride, the drive, the keeping faith with his calling. A doctor cares, and cares mightily, about the respect of his fellows. A friend of mine tells me of his oculist, who insisted he should stop in Baltimore and consult an oculist there. My friend, professing himself satisfied, saw no occasion for the consultation. Finally the oculist said: "Do I have to be brutally frank? I'm damn proud of that operation on your left eye; Doctor —— is my old teacher, and I want an excuse for him to take a peek at my work." You know better than I that a conscientious and resourceful physician is not, if he can help it, going to allow a case to lick him. And, if the case is tough and he loses, it hurts.

Now, I do not say that material things are to the doctor of no account. Like the judge, the lawyer, the engineer, the university professor, he has a right to demand advancement, security, an income adequate to his standard of life. For the professional man such things are necessities. Without them the physician is not in a position to give his best.

But such values depend on no single way of organizing medicine. To say that a doctor will give his utmost if he acts as his own business agent, and that his incentive will be stifled if he receives a salary, is not borne out by experience. The time was when the great scientific advance was the work of the solo inventor. Today the most creative of all work — the progress of science and the useful arts — is the product of men on salary. In the large offices the great mass of lawyers now work on salary, and work as hard and as heroically as the youngster who used to flaunt his own shingle in the breeze. It is true that the chance to become a partner is a prod, but I should not rank it overly high, for work equally as good is done by the lawyers in the Government, where no such opportunity exists. In our institutions of higher learning, research as well as teaching falls to salaried employees, and there you will observe an interest, an excitement, a devotion to duty, an urge to be up and doing. And, to return to medicine, how many thousands of our best doctors are today giving their all without stint in the service of the Army and the Navy?

Ambition, security, income, are necessary things. They have in every age and among the most varied conditions of society driven men to accomplishment. If I were a youngster, I should rather leave the series of judgments that shape my career to men

of my own profession than attempt to get ahead by translating my skills into the art of winning and holding patients. And, most important of all, why is it, I ask you, that doctors are troubled by this doubt when university professors, lawyers in public service, officials who make of government a life-work, never even raise the question? And why is it that, when the Government of England first undertook to offer medical service, there was quite a chorus that viewed with alarm the loss of incentive, whereas today such a doubt remains unvoiced? It is easy enough to answer the argument that a salary will kill the urge to serve; it is hard to understand why the question is ever asked.

It is too late to turn away from that fearful subject of the state as employer, for I am already discussing it. As for myself, I have no more fear of a venture of the state into medicine than I have of a venture of the state into law. The venture into law is old — judges, public counsel, prosecuting attorneys, are examples. The venture into medicine — the pauper and the criminal aside — is new. But the traditions and high standards that have long operated in one realm can be established in the other. The Government, in most of its activities, has adhered to a very high standard of professional competence. If for a moment I may be personal, I have experienced the practice of law in a large private New York office and in the Department of Justice. The Government has never imposed on me restrictions that I have felt to be a burden. If anything, I have enjoyed a greater freedom than I could have had in a private law office. It is true that frequently my own judgment is tempered by the opinions of my colleagues, but usually a "consultation" — as you call it — leads to a sounder decision than any one of us alone would make.

You are right in insisting that high standards of medical care must not be compromised, but standards are a professional matter. Their chief dependence is on adequacy of resources. They are not inherent in any type of organization. Your current ways, as well as state medicine, have their insidious dangers. And, since comparative merits are at issue, I am not content with any argument that points out vices in the one without looking at the faults of the other. As it is now practiced, medicine is exposed to the corroding ways of business. Witness the recent exposure of fee splitting in the City of New York. Under another dispensation it may be exposed to the strange ways of politics. Which is the greater temptation, I am not able to say. But politics is a thing from which no activity of man is free. It can be employed to achieve holy as well as unholy results. And the state is not, as some of my physician friends seem to fear, a ward heeler telling the doctor how to practice.

I am not, mind you, presenting a case for or against the prevailing system, state medicine or any particular medical order. There is, as I said in the beginning, no such question as "private practice" versus "socialized medicine," for practice is never private and all medicine has a social function. The question you and I face is harder, more intricate, far more detailed, than any such antithesis suggests. First of all, you must ask what you want medicine to do. That is easy: to furnish to the whole population an adequate service of quality on terms it can afford. Next, you must contrive ways and means for seeing to it that the great variety of services we call medicine are called into play to serve the common health. Next, you must set up protections against the hazards that you and I see so clearly. And finally, all these arrangements must be brought together into a going organization. Such a result is not to be attained by an act of faith or a single trial. The conditions of health vary from city to country, from section to section. The needs of the people as locally felt must be met, and this means variety, flexibility and capacity for adaptation. It means, seek — honestly, objectively, courageously and ye shall find; knock at many doors until the right ones shall be opened to you.

* * *

Thus there is no royal road to a modern medical order. And thus the system we seek is no choice between "private practice" and "socialized medicine." For in following his private calling the physician is fulfilling a social service; in medicine, "private" and "social" have always been and always will be associated. And the terms, so frequently set down as opposites, have only the most evasive content. Private practice has no stabilized form; the private practice of the country doctor who rode his nag, did his rounds, was monarch of all he surveyed, is not the private practice of a modern urologist. And socialized medicine embraces systems as distinct as the charity of the medieval church, the Royal College of Physicians, the clinic of a modern university, a bureau of public health and the Russian way. You can no more get anywhere with such terms than you can practice your profession with a general concept of "disease" as your stock in trade.

The question demands, not an easy answer, but painful, constructive, detailed thought. It demands, too, an indulgence in downright trial and error, without which nothing worth while emerges. A few experiments — far fewer than the length and breadth and depth of the subject demand — have been blazing fresh trails. An increasing number of physicians have enjoyed practice on their own and on salary and are prepared, from experience rather than in speculative terms, to assess debits and credits. In my pocket I have a letter from one such physician who sets down an illuminating comparison by no means to the disadvantage of salaried work.

And, last but most important of all, the war has given a quick step to a trend long in the making.

A host of physicians now in service are conscious of the shortcomings of "military medicine" and have scores of suggestions concerning how it can be improved, but they have become aware of the tremendous possibilities that inhere in a medicine directly organized to perform its function. And millions of soldiers, returned from the front, are going to demand for themselves and for their families the instruments of health to which they are entitled.

The course of events moves fast, and to me a new medical order seems inevitable. My fear is not that we shall not get it — an awakened public, sparked by our veterans, will see to that. My fear is that we shall not bring to its creation all the knowledge, wisdom, understanding we possess. A reference to the Wagner–Murray–Dingell Bill will make my point. About its intent and objectives there can be for me no dispute. Its detail of provisions, however, may or may not fall short of its purpose — I do not know. On ways and means I am open to argument in behalf of something that is better. In respect to the necessity of distributing the cost of protection against ills I am wholly convinced, and I think the American people is adamant.

The medical order that our stalwarts defend has already ceased to exist. A new medical order will come to be even if we do not will it — even, in fact, if we stubbornly resist it. For the medical order, like other institutions, cannot insulate itself against the impinging culture. It must make its response to the great pulsing tides that everywhere else enter our national life. The wiser physicians know that sheer opposition is not going to hold back the tide. They are putting forward — it seems to me a little timidly — proposals of their own. The other day the medical society right here in St. Louis voted approval of a plan for prepaid medical care, and the papers stated that a minority of doctors thought it did not go far enough. Timidity must be replaced by high resolve, and I am afraid that a very old adage that goes back at least as far as ancient Egypt applies here: "If you can't stop a movement, join it."

And, quite seriously, the doctors' joining is essential to the movement's salvation. The organization of medicine is an affair of a couple of shops. It is a job for the craftsman in social order, but it must be shaped to the very life of the medical service it has to offer. If doctors oppose, or stand on the side lines, the layman will create a medical order that may prove to be indifferent or even blind to the values doctors prize most. If the doctors assume a role in creation, they can see to it that no compromise is made with the standards of the profession.

The problem thus becomes one of creation. In respect to a long detail of questions — the selection of personnel, the standards of care, the carrying of risks, the methods of payment, the ways of remuneration — a score of ways are open. The form of organization may follow an agency of state, the university pattern, the hospital setup or a combination of devices derived from all these. The government may dominate the system, become one of a number of parties to its management or be excluded from it altogether. The venture may fall into the legal form of a public-health authority, a nonprofit-making corporation, a series of independent or interlocking corporations, a group of consumers co-operative, a mutual association of the profession and the laity or still something else. Its direction may be lodged with a tripartite board, representing the government, the public and the profession, or the public and the profession, free from governmental interference, may assume joint responsibility. It may or may not be state medicine; it cannot escape being social medicine.

It is man for whom medicine exists. Its function must be to keep a whole people in health. The doctor must be the focus, but on his office a host of unlike services must converge. He must not stop with asking, "Of what is this man ill and what can I do about it?" He must also inquire, "Why and how did this man become ill in the way he did?" The quest leads beyond cure to all the conditions on which personal well-being depends. For food, clothing, housing, recreation, family, occupation, social life, are all terms in the equation of health. Nor must man's habitat be forgotten, for adaptation is the requisite of the life process. Many arts must converge into the new medicine; prevention, sanitation, the public health, must become a part of it. At its hub must stand the doctor; it is he who must direct this vast apparatus of skills, specialized personnel, facilities to the service of the human being. The medical order that I suggest — and that which the American people are going to have — will be vaster and mightier than anything we now know.

Such a medical order, it seems to me, should be hailed enthusiastically by the physician. In respect to professional matters his word will go. His opportunities for service will be greatly enlarged. He will have access to facilities that only the exceptional physician can now afford. A shift in work now and then will keep him alive in his profession. He can occasionally get away for further training. And above all he ought to be better able to turn his clinical work to permanent account.

In an abstract way I recognize the values of ivory-tower research. But after all, the heat of the daily round has its own contribution to make. In the last five years Antitrust Division of the Department of Justice has perhaps done more to blaze a path for the law than has any law-college faculty in the land. The result has not been due to any unusual ability of the men in this division; they have simply been on the firing line and have had an opportunity to turn their clinical work to account. To me it seems that one of the great shortcomings of the prevailing medical system is that the practitioner is kept so busy with his patients that he

cannot translate his work into medical discovery.

Thus, in the end, I return to my beginning. I can hand you no ready-made medical order on a silver platter. If I could, it would do you no good. I can only suggest to you, whose minds have long been busied with the subject, some reflections of a man of another profession. And I am positive that a service adequate to the times cannot be brought into being without the doctor's creative participation. As doctors and patients we face a crisis, and my appeal is to the ancient wisdom of the profession. The ends of medicine remain unchanged; ways and means must be found to adapt its practice to the conditions of present-day society. A new organization must be created that an ancient mission be not lost, that once again medicine shall be available to all in need and that charges shall be graduated in accordance with ability to pay.

An instrument of the common health, such as never before has been offered to a people, is within our reach. This is no time for petty doubts and timid moves. In the face of a national challenge we must — as one of our great jurists said of the law — let our minds be bold.

A UROLOGIST LOOKS AT CHANGING TRENDS IN MEDICAL PRACTICE*

HERMAN L. KRETSCHMER, M.D.†

CHICAGO

WHEN your president invited me to take part in your program and suggested that I talk on this subject, I wondered what he had in mind. Does the urologist who looks through the cystoscope have a point of view different from that of any other practitioner of medicine? I believe that he should not have. After all, these social trends are of vital interest and importance to every physician in this country, be he general practitioner, specialist, research worker or teacher.

"Public health is the musical instrument easiest for the welfare worker to play, and the softest chord is the venereal problem. They not only are able to stir the sympathies of the public, but also can arouse it to supporting the movement through fear of infection." Thus spoke Dr. James A. Gardner in his chairman's address before the Section of Urology at the seventy-third annual session of the American Medical Association held in St. Louis just twenty-two years ago. He was one of the first among our members to interest himself in the early manifestations of these beginning social trends.

It is interesting to reflect that at this annual session of the American Urological Association in St. Louis, a part of the program is being devoted to a consideration of social trends from the urologist's point of view. Unfortunately, many specialists have been indifferent to impending social trends. Their aloofness to the many problems of medicine and their lack of interest in the work of their county and state medical societies and in the activities of the American Medical Association are difficult to understand. This is not to say that they have not been interested in their respective special societies, both local and national. The specialist and his special society have done much toward improving his type of practice and increasing the scope of knowledge along his own line, and have contributed to the training of future specialists and to the rendering of better medical care to the people of this country.

No one will say that this great organization has not met all its obligations in the fullest possible manner, and no one will question the statement that nowhere in the world is urology on so high a plane as it is in this country. Nor will he deny the statement that the people of the United States receive the best urologic care that it is possible to obtain — and this under the present system of practice, without regimentation and socialization. I should, however, like to have each member of this association ask himself these questions: How many times have I attended my county medical society meetings in the last five years? How many meetings of my state and the national association have I attended? What have been my contributions to the work of the American Medical Association and its component societies, besides the presentation of scientific papers?

I am reminded of Dr. Frank Billings's statement made to me in Dallas at the meeting of the American Medical Association in 1926. He told me that he had been a member of the association for forty-five years and had attended forty-four annual sessions. This is an example to be followed by every physician in this country.

I should like to point with pardonable pride to the activities of some of our colleagues in the House of Delegates of the American Medical Association. Although I cannot mention all of them, I should like to mention some of the old wheel horses who have taken an active part in this representative body: Abell, Bandler, Braasch, Cameron, Crockett, Hamer, Low, Parke, Sargent, Smith, the late Terry Townsend and others. In my travels throughout

*Presented at the fourteenth annual meeting of the American Urological Association, St. Louis, June 21, 1944.
This address originally appeared in the November, 1944, issue of the *Journal of Urology* and is reprinted, with minor changes, by permission of the editor, Dr. Hugh H. Young.

†President, American Medical Association.

the country I am pleased to see more and more urologists taking an active part in their county and state societies.

Unfortunately, in this country there is a fetish for passing laws. People seem to think that by simply passing a law all will be well. And they never seem to learn. Note the miserable failure to regiment the drinking lives of the people represented by the Volstead Act. No disease is cured by the passing of a law. Diseases are cured and eradicated by research, medical education and treatment, and not by regimentation. All the laws on the statute books failed to eradicate venereal diseases, but now, as you know, effective drugs are available. I recently heard Admiral McIntire state that the venereal diseases are no longer a problem in the Navy. When, as a result of medical education and research, specific remedies have been discovered and their use by physicians has been established, and when their use does not entail a protracted period of treatment, the co-operation of the patient is readily obtained and the results are almost miraculous.

The regimentation of the people and the physicians has never solved any medical problem. Unfortunately, regimentation only makes matters worse. The various attempts to regiment the medical profession are only a steppingstone in the regimentation of the entire country. Many citizens are now keenly aware of the dangers that will follow such a procedure if applied to the medical profession. Once the medical profession has been regimented, the other professions, as well as commerce, industry, newspapers, communications and other activities, may share a similar fate. Note, if you will, the detailed study given to the Wagner–Murray–Dingell Bill by the American Bar Association.

I do not need to call your attention to the fact that under regimentation medical education and research always suffer, that the quality of medical service to the patient deteriorates and that the cost of the service always goes up owing to an ever-increasing bureaucracy. Some years ago from 51 to 53 per cent of the payments into the *Kranken Kassen* in Germany went for administration and the remainder for all phases of medical care.

Under the present system of practice in the United States the span of life has been increased to sixty-five years; maternal deaths have reached an all-time low despite the fact that over 3,000,000 babies were born last year and that over 58,000 physicians were in the armed forces. Infant mortality was never so low. Diphtheria, typhoid fever and other acute infections are practically nonexistent. Tuberculosis, which has always shown an increase in every war and after it, has also reached an all-time low. Surely the physicians of this country can be proud of their achievement. It behooves the people to stop, look and listen before they abandon the type of practice that has given them the best medical care possible. Do the "do-gooders" believe that they can improve on the results?

There are isolated areas in this country in which there is need for the extension of medical services, and the medical profession has always been and is now ready to improve such situations. These needs are purely local and can be taken care of on a local basis. Because of these local problems, which can be corrected, there is no justification for abandoning completely the finest medical service in the world.

It is incumbent on every physician to acquaint his patients with the dangers of the regimentation of medical practice. Every physician must devote a certain amount of time every day to informing his patients just what this means in the way of deterioration in the quality of medical care, the limitation of his choice of physician and the increased cost in the form of increased taxes. I believe that once the patient has been educated so that he understands the implications, he will be loath to give up the best medical service that any nation has ever enjoyed.

The medical profession has never been static. It is keenly aware of the importance of increasing the distribution of good medical service to all the people. In order to study this problem, the House of Delegates recently established the Council on Medical Service and Public Relations to study and analyze the various plans that are now in operation and to make available the highest quality of medical care to all the people. Many of you no doubt are familiar with these various plans, and I need not discuss them with you. Not only is the medical profession interested in this subject, but industry and the insurance companies have given this subject much study and consideration.

I believe that it would be most fitting to express a word of greeting in the form of a message to the members of this society who are now in the armed forces. From the letters of a good many who have written to me, they are wondering what kind of world they are coming back to. It was the impression of the 58,000 doctors who went into the armed forces that they were fighting to free the world of regimentation, in other words, to free the world of dictators and to preserve the American way of life.

The question of regimentation of the medical profession and the patient is one that concerns every physician as well as every citizen of this country.

MEDICAL PROGRESS

CARDIOLOGY: THE NORMAL HEART IN OLD AGE*

A. Stone Freedberg, M.D.,† and Herbert D. Lewis, M.D.‡

BOSTON

FOR some time the aging of the population has been a matter of concern to many. In 1940 approximately 9,000,000 persons, or 7 per cent of the population, were sixty-five years of age or older,[1] whereas a study of the trends indicates that in 1980 approximately 22,000,000, or 14 per cent of the anticipated population will be sixty-five or more years of age. This proportion will be reached earlier in some countries, owing to the losses of young manhood in the present war. It is of importance that life expectancy, for the increasing number of persons reaching old age has not increased since 1900 (Table 1). Thus, although more men and women in this country are living longer, they succumb to invalidism[2] and death at rates that have been unaffected by general medical progress.

TABLE 1. *Expectation of Life for White Males in the United States (adapted from Dublin[2]).*

Period	Expectation of Life			
	at birth	at age 50	at age 60	at age 70
	yr.	yr.	yr.	yr.
1901	48.23	20.76	14.35	9.03
1939	62.60	21.08	14.36	9.03

Although the general social aspects of this situation[1,3,4] need not be discussed here, it is apparent that methods of prolonging the period of productivity of the aging population are becoming increasingly important. This involves further studies of disease in the aged, in order that preventive medicine[5] and effective therapeutics may be applied. Studies related to old age have been recently undertaken on a large scale,[6,7] and books,[8–13] a journal[14] and symposiums[15–18] devoted to gerontology and geriatrics have appeared.

It has long been known that death from gradual decay is extremely rare and may indeed be nonexistent.[19–21] Diseases of the cardiovascular system constitute the main cause of death in the aging. Vital statistics indicate that heart disease is responsible for 25 to 50 per cent of all deaths,[21–23] and autopsy data are in agreement.[24] Many excellent contributions to knowledge of the heart in old age have been made in the past few years, but a basic difficulty in most studies of this sort is the decision concerning which changes constitute disease and which are those of normal senescence. It is the purpose of this review to summarize the accumulated knowledge bearing on the normal heart in the aged.

*From the Medical Service and the Medical Research Laboratories, Beth Israel Hospital, and the Department of Medicine, Harvard Medical School.

†Assistant in medicine, Harvard Medical School; junior visiting physician and associate in medical research, Beth Israel Hospital.

‡Assistant in medicine, Harvard Medical School; associate in medical research, Beth Israel Hospital.

Anatomy

Heart weight. The absolute weight of the heart is said to diminish with age,[25] although the ratio of heart weight to body weight increases, according to Müller[26] and Gray.[27] Other authors, including Sagebiel,[28] point out, however, that atrophy does not occur. Rosahn,[29] in a study of 187 men with normal hearts at autopsy, found a significant correlation between age, body weight and heart weight. He derived the formula: age (in years) plus 3 times the body weight (in kilograms) plus 100 equals the heart weight. He concluded that a diagnosis of cardiac hypertrophy was justified when the observed heart weight exceeded by more than 77 gm. (approximately 20 per cent of the mean weight for the entire group) the estimated heart weight. Willius and Smith,[30] using a height-body weight method for estimating the normal, found approximately one third of a group of 376 patients seventy to ninety-nine years old to possess hearts with normal weights. In the remainder the excess cardiac weight could be explained as consequent to disease processes, such as hypertension, aortic stenosis, adherent pericarditis and myocardial infarction. It should be pointed out that their upper limit of normal weight is low (294 gm. for males, and 250 gm. for females).[31] It is apparent that there are as yet too few data concerning normal heart weight in the older age groups to permit a conclusion concerning the occurrence of hypertrophy as part of the aging process unrelated to disease.

Gross changes with age. The pericardium tends to become opaque, particularly over the surface of the base of the right ventricle. The apical portion of the left ventricle is said to decrease in size.[32] Subpericardial fat tends to increase along the grooves of the coronary vessels, especially in the auriculoventricular groove at the base of the right auricle. The valves become more rigid; calcium may be deposited in the mitral and the aortic ring, with calcification of the annulus fibrosis. The sinuses of Valsalva become deeper. Karsner[33] has pointed out that the latter changes may be due to earlier inflammatory disease, with a loss of its identifying

features. Willius and Smith[30] found 93 per cent of hearts from 381 persons aged seventy or more to present varying degrees of valvular sclerosis, so that these changes should be considered normal. Calcific aortic stenosis[34,35] and mitral stenosis of rheumatic origin[36] have been reported in elderly patients who reached advanced ages without suffering any ill effects from their previously acquired valvular disease.

Microscopic changes with age. The microscopic changes of involution have been well summarized by Warthin[37]: there is a loss of power of cell division with fewer mitoses, a quantitative atrophy with fewer and smaller cells, condensation of the chromatin of the nucleus, nuclear pyknosis, vacuolation and karyolosis, and lipoid deposition in the cytoplasm may be observed. It should be stressed, however, that such changes are usually most marked where the blood supply is insufficient.[38] The striations tend to disappear about the nuclei, and an increased amount of pigment may be observed at the poles of the muscle cells. The conducting system is unaffected by the general atrophy. Hyaline fibrosis, with a loss of water, is said to occur, but Hastings et al.,[39] studying the water content of the left ventricular muscle in puppies and adult dogs, found no differences. Miller and Perkins[40] showed an increase in thickness of the left atrial endocardium and a striking increase in elastic tissue fibers, mainly in the auricles but also in the ventricles. Finally, vascular changes such as atherosclerosis, loss of elastic tissue and muscle cells, and calcium deposition are frequent.

Coronary arteries. Whether arteriosclerosis is to be regarded as a senescent change or due to some disease of unknown origin is unsettled. Hirsch and Weinhouse[41] point out that even when only the media of the aorta are taken (avoiding adventitia and the variation with disease in the intima), there is an increased percentage of lipids, particularly cholesterol esters, with age. In a study of routine blood cholesterols and cholesterol esters in 150 persons with a mean age of seventy-seven, 60 per cent had levels higher than 200 mg. (40 per cent free).[42] The lipid deposits in atherosclerosis seemingly result from nonselective deposition of plasma lipids. It is, however, peculiar that cholesterolemia such as is seen in diabetes mellitus or totally thyroidectomized individuals may be associated with normal coronary arteries. The absence of arteriosclerosis in the Chinese, who not only eat a low cholesterol diet but, as Snapper[43] points out, have low blood cholesterol values, may be explained in part by the age of the patients studied.

Whether or not coronary arteriosclerosis is a disease, it is a striking fact that occlusions are found in 40 per cent of males over fifty-five years of age. Thus, as age is prolonged, there is a tendency for completely healthy coronary arteries to become fewer and for progressively severer changes to appear.[44] In Akerson's[45] series the peak of frequency of disease was found in the ninth decade in men and in the eighth in women. On the other hand, healthy coronary arteries are not unusual in old persons.[46] The development of anastomoses does not occur with progressive age, and this may explain in part the increased mortality in initial attacks of myocardial infarction in old persons. It is of some interest that no correlation between changes in the radial artery and coronary-artery disease exists[47]; in marked cases of the latter the radial arteries may present a minimal degree of arteriosclerosis, both anatomically and clinically.

Physiologic Changes

Pulse rate. The pulse rate is said to increase slightly in persons above the age of sixty-five.[48] Humphry[49] noted an average pulse rate in women over eighty of 78 to 79, while in men it was 73. In 52 centenarians the average pulse rate was 74 to 75.

Carotid sinus. The carotid-sinus reflex becomes more sensitive with age.[50] Sigler[51] has attempted to use the degree of sensitivity as a test for the presence of coronary-artery disease and angina pectoris. Although it is true that many patients with angina pectoris have a sensitive carotid sinus, approximately a third do not.[52]

Cardiac output. Lewis[53] found no change in cardiac output in 100 men aged forty to eighty-nine. Thus the mean cardiac index, the cardiac output (in liters) divided by the surface area (in square meters), was 2.3 in the eighth and 2.2 in the ninth decade respectively. Two persons aged ninety-one and one aged one hundred and one had indices between 2.0 and 2.3. The small decline is due to a drop in oxygen consumption in the aged. Previous observers had noted in older persons a lessened oxygen consumption.[54,55] The normality of the cardiac output at rest is, however, no index of the heart's ability to act under stress.

Vital capacity. Several studies on the effect of aging on the vital capacity show that this measurement is only slightly decreased from forty to fifty years, with a rapid and progressive decline in the older age group.[56–58] Thus the vital capacity of otherwise healthy men in the ninth decade of life is found to be about half the accepted standards.[56,57] A similar decrease in older men occurs in total lung volume, with a concomitant increase in residual air and mid-capacity (functional residual air).[58] The alterations in respiratory dynamics are a reflection of other changes in structure and function that occur with aging, namely, degenerative changes in the thorax and spine, with limitation of respiratory excursion, obesity and elevation of the diaphragm and loss of elasticity of the lung parenchyma and bronchial tree. If these anatomic changes are accepted as part of the process of normal aging,

then the changes in respiratory measurements that they produce must be interpreted as normal, and standards must accordingly be corrected for age. This is essential for the clinical interpretation of these measurements, since the changes of aging and of cardiorespiratory disease are in the same direction.

Acid-base balance. There are no significant changes in acid-base balance. Thus 33 of 50 persons aged seventy or over studied by Dogliotti and Santi[59] had a normal blood pH. The remainder showed changes in pH to the side of either uncompensated acidosis or alkalosis. With exercise in old persons, however, there may be an abnormal accumulation of lactic acid and a decrease in alkaline reserve,[54] indicative of an inadequate increase in cardiac output during exercises, that is, a lessened cardiac reserve.

Venous pressure and circulation time. The venous pressure is normal in the aged.[60, 61] The circulation times, as measured with the fluorescein[62] and cyanide[61] methods, show a definite trend toward slower rates with increasing age, but they remain within the normal upper limit of 20 seconds. On the other hand, the velocity of blood flow through the lungs shows no constant relation to the age of the patient.[63]

Velocity of pulse wave. Studies of the pulse wave velocity of the radial artery and the aorta showed an increase with age.[64–66] This is associated with a decrease in elasticity, which may be halved at the age of sixty.

Clinical Examination

False diagnosis of heart disease. A diagnosis of congestive heart failure in the aged based on dyspnea, slight cyanosis, basal rales and a palpable liver edge is too frequently made. Pulmonary diseases such as emphysema, pulmonary fibrosis, mild chronic bronchitis and atelectasis are, on the contrary, much oftener responsible for these symptoms and physical findings. Peripheral edema, particularly that occurring as an isolated finding, is more usually due to nutritional deficiencies, varicose veins, intra-abdominal tumors and obesity than to congestive heart failure. Chest pain, consequent to cervical or thoracic osteoarthritis, hiatus hernia or gall-bladder disease, is too frequently labeled angina pectoris. A careful history is usually all that is needed to differentiate these conditions.

Heart size. A normal-sized heart, although it does not exclude the presence of coronary-artery disease and angina pectoris, does rule out most other forms of cardiac disease. In the aged it is difficult, however, to be sure of the heart size by percussion and palpation. Emphysema probably imposes the greatest difficulty in this regard. A clearly hypertrophied heart, as evidenced by an apex impulse beyond the midclavicular line or a corresponding left-border dullness, is not normal. Dullness to the right of the sternum may be evidence of enlargement or dilatation of the right side of the heart. An abnormal band of dullness at the base (over 6.0 cm.) is evidence of ectasia of the aorta.

Heart tones. The heart tones are decreased in loudness in the aged.[67] Emphysema probably plays a role in this phenomenon, although Garguilo and Allende[68] say that there is a physiologic decrease in the intensity of the heart sounds in old age. Changes in the tones, such as accentuation and disappearance of the second aortic tone, have the same significance in the aged as in younger persons. Accentuation of the second pulmonic sound is indicative of pulmonary hypertension.

Heart murmurs. It is apparent from a consideration of the anatomic data previously cited that soft systolic murmurs at the mitral or aortic area might be expected to be heard in many older people. A loud mitral systolic murmur, however, must be interpreted as due to dilatation of the mitral ring, secondary either to ventricular dilatation or to changes in the mitral valve; an apical diastolic murmur is, as in younger persons, diagnostic of mitral stenosis. Aortic stenosis, a frequent lesion in the elderly, may be diagnosed when two of the following three signs are present: a systolic aortic murmur over the aortic area transmitted to the neck or precordial area, or both (calcium deposits are said to produce a rasping or musical quality to the murmur); a systolic thrill in the aortic area that may be brought out by bending the patient forward; and an absent or diminished second aortic tone. Willius[34] has divided calcareous aortic stenosis into four grades anatomically and clinically. A division into only two groups is probably more useful. The severe grades of calcareous aortic stenosis showed marked cardiac hypertrophy: a loud, rasping systolic murmur heard over the entire thorax and loudly transmitted to the carotid arteries, a coarse systolic thrill anteriorly in the second and third right interspaces, an absent second aortic tone, an aortic diastolic murmur in a third of the cases and, if aortic insufficiency and hypertension are absent, a small peripheral pulse and low pulse pressure. The milder grades of calcareous aortic stenosis presented a rough and fairly loud murmur heard best in the aortic region and transmitted usually into the carotid arteries. There was usually no accompanying systolic thrill or change in the aortic second tone, and cardiac hypertrophy was slight or absent. It should be stressed, however, that these findings were based on hearts showing definite calcareous aortic stenosis and were not compared to the findings in patients presenting only atheromatous changes in the aorta and aortic valve or annulus fibrosis. A systolic-diastolic murmur and thrill may occur in arteriosclerotic aneurysms and senile ectasia of the thoracic aorta,[69]

but may be differentiated by the presence of a good aortic second tone and by x-ray visualization.

Rhythm. The heart rhythm in the aged is normal. Although extrasystoles do occur, there is no clear evidence that they occur more frequently in the aged than in the young. Paroxysmal arrhythmias, such as fibrillation and flutter, are seen more frequently in the aged, particularly in patients suffering from pneumonia and thyrotoxicosis.[70] When the rate is over 150, the presence of anginal pain with the arrhythmia is highly suggestive of the presence of coronary-artery disease.[71] Persistent auricular fibrillation should arouse the suspicion of thyrotoxicosis. It is significant, however, that cases of persistent auricular fibrillation lasting as long as twenty-five years have been reported.[72]

Blood pressure. Reported studies of the blood pressure present conflicting results. Some investigators found no change in average or modal blood pressure with increasing age.[73, 74] Robinson and Brucer[74] excluded, however, all pressures of 140 systolic, 90 diastolic, and above. On the other hand, Master et al.,[75] in a series of nearly 15,000 men and women, found two thirds (males) to three fourths (females) of persons seventy years old and over to have blood pressures over 150 systolic, 90 diastolic. Other reports of smaller groups likewise contain a large percentage of persons in the older age group with systolic hypertension.[76, 77] The systolic hypertension is probably compensatory for the loss of elasticity in the aging blood vessel walls. It is of some interest that the life expectancy of persons with systolic hypertension was of the same order as for those with normal blood pressure.[76] Thus it is probable that the presently accepted standards of normal blood pressure in the aged are too low. In nonhypertensive individuals, the diastolic blood pressure shows a tendency to fall with age,[76] with a resultant marked increase in pulse pressure. This is probably due to the rapid fall of pressure within the arteries during diastole,[78] for which compensation does not occur because of the diminished elasticity of the blood vessels.

Corrected erythrocytic sedimentation rate. The sedimentation rate is widely used in the diagnosis of myocardial infarction. It must be remembered, however, that there is a definite rise in the corrected erythrocytic sedimentation rate with age alone.[79] Values up to 0.7 mm. per minute by the Rourke–Ernstene method are apparently normal above the age of fifty, whereas in younger individuals the normal is 0.08 to 0.35 mm. per minute.

Electrocardiogram. The paucity of knowledge of the electrocardiographic changes consequent to age alone is reflected in the fact that most of the standard texts of electrocardiography have no listings for subjects as "aging," "aged" or "old age." Certain changes are known to occur, however, with sufficient frequency in the aged in the absence of other manifestations of cardiac disease to be regarded as normal. Many of these same changes, nevertheless, are considered to be definite, although minor, abnormalities when they are found in younger subjects.

The most frequent of these changes in the electrocardiogram of the aged is a shift in the electrical axis of the heart to the left (or counterclockwise); this has been observed in well over 50 per cent of older patients.[80–85] An associated but less frequent finding with the same significance is a prominent QS wave in Lead 3, and an inverted T_3. These changes probably derive from a more transverse position of the heart secondary to flattening of the diaphragms and perhaps also in part from a relative hypertrophy of the left ventricular mass with age in relation to the right ventricle. Thus, in a group of patients with marked left-axis deviation, Faulkner and Duncan[86] found normal-sized hearts by x-ray study in more than a third, whereas almost another third showed hearts that were anatomically normal.

Extrasystoles occur in about a third of elderly patients,[87] and as in younger groups, they constitute the usual electrocardiographic arrhythmia. Those of ventricular origin are about twice as common in occurrence as those of auricular origin. They assume pathological significance when frequent or when they show coupling or other rhythmic occurrence or multiple foci of origin.

With aging there is a slight increase in transmission time through the entire conduction system of the heart, reflected in a PR interval that frequently exceeds 0.20 second and an intraventricular interval that is often greater than 0.10 second.[82, 85] Tendency to low voltage is found in all the component waves of the electrocardiogram.[85]

There is less agreement concerning the frequency or significance of other isolated electrocardiographic findings in the aged; these include low or inverted T waves in leads other than Lead 3, deviation of ST segments, the duration of the QRS complex beyond 0.11 second, the presence of prominent Q waves in leads other than Lead 3, right-axis deviation, auricular fibrillation and marked bradycardia. Indeed, there is little agreement as to their significance in healthy young persons.[88]

It is apparent from the above that there is no agreement among observers about the definition of the normal electrocardiogram for healthy old persons and about the frequency of occurrence of normal tracings in various age groups. Thus the incidence of abnormal electrocardiograms in groups of aged persons is cited by various authors as 0 per cent,[87] 26 per cent,[80] 41 per cent,[89] 67 per cent,[83] 85 per cent[82] and 97 per cent.[90] Much of this discrepancy is accounted for by the inclusion in some series of old persons with definite clinical evidence of serious heart disease, such as cardiac enlargement, congestive failure or myocardial infarction,[83, 90] and by great variability in the criteria of electro-

cardiographic normality. The crux of the situation is that standards have not yet been established for older age groups. It appears, however, that over one fourth of aged persons with no evidence of heart disease by careful history and physical examination show abnormalities in the electrocardiogram.[80, 82, 89]

There are nowhere in the literature any reports of clinical, electrocardiographic and detailed pathologic correlations in aged hearts, and it is therefore of some interest to cite certain preliminary observations in this regard.[91] A survey was made of the records of hearts from 100 consecutive patients aged sixty-five and over studied at the Beth Israel Hospital by the injection-dissection technic of Schlesinger.[92] In 29 cases the hearts showed coronary arteries essentially free of disease, and in 17 of these the heart could be regarded as clinically and pathologically normal. Ten of this group of patients with "normal" hearts were studied electrocardiographically. These patients did not differ in age or sex distribution from the entire group of 100. Five of these had entirely normal electrocardiograms, 2 had low T waves in Lead 1, 2 had inverted T waves in Lead 4, and 1 showed the pattern of left-bundle-branch block. The last was the only patient in this group showing any increase in conduction time over the accepted standards for all ages; this is in contrast to the findings cited above. Left-axis deviation was present in 3 patients, right-axis deviation in 1, and in the remaining 6 the axis was normal. Three patients showed low voltage, and 2, ventricular premature beats. These observations, because of the small group involved, have no statistical significance. They illustrate, however, the type of study that will be necessary for the establishment in geriatric electrocardiography of standards that will separate disease and changed function due to normal aging.

To summarize, the following generalizations are thought to be of more significance than the few nonspecific changes that may be found in the electrocardiograms of aging hearts. First, there is no electrocardiographic pattern of the senile or aging heart.[84] Second, the electrocardiogram even in the very aged may be identical in all respects with that of youth.[93] As in any age group, serious and far-advanced heart disease may exist without any reflection of its magnitude or even its presence in the electrocardiogram; this is especially true of coronary-artery disease.[94] Third, adequate clinicopathological and electrocardiographic correlations are needed in the aged as a basis for diagnostic and prognostic conclusions. Such studies might well be aided by a widespread use of electrocardiograms in the routine clinical examination of patients of middle age and beyond. Finally, it is evident from the foregoing that, even more in the aged than in young patients, the electrocardiogram must be viewed as a part of the total evaluation of the patient, which should include careful history-taking and physical examination and correlated laboratory studies. Nevertheless, the diagnosis of coronary sclerosis will be missed in a fair number of apparently healthy elderly persons.

X-ray studies. Certain minor changes have been described in the x-ray appearance of the heart and great vessels in the aged.[95] As the diaphragm becomes higher, the heart assumes a more horizontal position and the contour of the left ventricle becomes slightly more prominent. The aorta in its ascending portion increases in length and circumference and may show tortuosity. Dilatation may become so marked that the diagnosis of arteriosclerotic aneurysm must be made.[70] Cardiac pulsations do not have the vigor characteristic of earlier years. Calcification may be seen in the aorta and aortic knob, in the heart valves or valve rings or even in the coronary arteries; when present in the valve leaflets, it assumes clinical significance.

There is no agreement concerning the heart size and the changes that occur with aging, even with respect to pathological data, as the discussion above indicates. If such changes do occur constantly, it remains to be seen if they are of such magnitude as to be detectable by x-ray technics and standards for determining heart size. The more reliable of these standards are now based only on height and body weight.[96] For the present, therefore, significant or progressive increase in heart size by x-ray studies, even in the aged, should be interpreted as being generally indicative of heart disease.

Treatment

General considerations. As we have noted above, although there has been a large increase in the number of people living to the age of sixty-five or over, no increase in life expectancy for this group has been observed.

It should be stressed that the majority of persons in this age group have coronary-artery disease. Thus in the 100 cases that we studied,[91] 63 patients had significant coronary-artery disease and the cause of death was cardiac in the majority. It is more striking that no clinical diagnosis of heart disease was made in 37 cases. In 15 of the latter cases the hearts showed extensive coronary-artery narrowing or occlusion, or both; in 1 case, that of a patient with lymphatic leukemia, a recently healed apical infarct was found. It is thus clear that although no clinical evidence of coronary-artery sclerosis may be present in a given patient, all elderly persons should be handled as if they had some degree of that disease. Progress would involve, therefore, among other things, preventive measures designed to prevent disturbances of function, congestive heart failure and acute cardiac accidents.

Surgery. The management of cardiac patients who require major surgery has been reviewed by

Blumgart.[97] Much of the discussion is pertinent to the older patient with no functional cardiac disturbance but with the statistical possibility of coronary-artery disease. The prevention of postoperative acute myocardial infarction depends on the avoidance of shock, which may follow hemorrhage, and severe infection. Hypoglycemia is of serious import in this regard in diabetic patients submitted to surgery. Hypotension associated with spinal anesthesia should be prevented by adequate use of sympathomimetic drugs having little effect on cardiac work, such as Paredrine or Neo-Synephrine. It should be stressed that rarely does an aged surgical patient die a primary cardiac death. Thus, Wilcox and Clagett[98] list 1204 patients over sixty-five years of age who underwent operations with a mortality of only 8 per cent for benign conditions and operable carcinoma. It was striking that only 20 per cent, however, failed to have a significant postoperative complication, such as thrombophlebitis, pneumonia, embolism, atelectasis or a cerebral or renal complication. Brooks,[99] however, points out that a third of a group of patients over seventy requiring abdominal section died in the hospital. Moreover, the survivors realized only a small fraction of their life expectancy. Wangensteen[100] stressed, on the other hand, the safety of multiple operations in patients adequately prepared with a preoperative period of high-protein, high-carbohydrate and low-fat feedings, adequate hydration and satisfactory electrolyte balance. It should be borne in mind, however, that edema may accumulate in a patient with poor cardiac reserve who is given a large amount of salt preoperatively or postoperatively, since approximately 1.0 gm. of salt retains 100 cc. of water.

Prevention of congestive failure. In last year's review[101] certain forms of curable heart disease were discussed. It should be stressed that anemia and nutritional deficiency may have a deleterious effect on the normal heart, particularly in the aged. Dietary restriction is frequent in the aged because of the lowered metabolic requirements, changes in gastrointestinal function, depressed appetite, loss of teeth, lack of exercise and so forth. The recognition and adequate therapy of anemia and nutritional deficiency before cardiac complications such as angina pectoris and congestive heart failure have occurred are important. Tuohy[102] has stated that the competence of healthy old people is largely a matter of nutrition. He emphasized the error in the idea that the elderly should be abstemious, while advocating a restriction of fat content in the diet of an inactive patient to 10 per cent of the necessary calories.

Burwell[103] summarized some of the factors tending to precipitate heart failure in patients with asymptomatic heart disease. The most important of these are infections, particularly respiratory infections, associated with fever, tachycardia and cough, since they cause increased cardiac work and possibly a depression in cardiac efficiency. Bed rest, adequate chemotherapy and maintenance of oxygenation should minimize the injury to the heart.

Bed rest. Much has recently been written concerning the abuse of bed rest in elderly patients.[104-107] It has been stated by Dock[104] that bed rest claims more lives than all other therapeutic agents added together. The evidence is, however, not conclusive, for many patients do poorly in the hospital because they are worn out by overvigorous investigation and overfrequent examination. The energy expended by a patient in a complete gastrointestinal roentgenologic study, for instance, is exhausting, particularly to an old person. Drastic changes in eating habits and in hours of sleep made necessary by hospital routine, together with the too frequent use of sedatives, may also act deleteriously in the aged. Particular emphasis has been placed on bed rest as a cause of occurrence of peripheral and pulmonary emboli.[104] Actually, however, the cause of thrombophlebitis is unknown, and it is perhaps as unscientific to ascribe the cause to bed rest as it is to say that bed rest has nothing whatever to do with its occurrence.

It is clear, nevertheless, that prolonged and absolute bed rest leads to muscular, possibly including cardiac, weakness and atrophy, in addition to pulmonary and other complications. The period of convalescence may therefore be unnecessarily prolonged. Good clinical judgment is thus of paramount importance in this matter.

Physical exertion. One has only to look at the obituary notices in newspapers to be impressed by the effect of severe physical exertion in elderly people. Boas[108] in particular has stressed the occurrence of acute myocardial infarction after severe physical or emotional stress. Aged patients should be warned to avoid such strain, particularly in the winter and also when they are fatigued.

On the other hand, an important and often neglected aspect of prolonging the useful lives of the aged is making living worth while for them. Too often they live in an insulated atmosphere that promotes physical and mental atrophy because of an imposed isolation. Psychometric studies actually demonstrate a wide range of individual variations in the aged in intellectual ability, physical skill and interests.[109] The family physician can play an important role in helping to devise a program of activities for his elderly patients that is adapted to these individual variations in mental and physical capacities.

References

1. Dublin, L. I. Statistical and social implications in problem of our aging population. In *Symposium: Medical Problems of Old Age.*[1] P. 46.
2. *Idem.* Longevity in retrospect and in prospect. In Cowdry, E. V.[1] Pp. 91-110.
3. Piersol, G. M. Problem of aging. *Bull. New York Acad. Med.* **16**: 555-569, 1940.
4. Carlson, A. J. Older worker. *J. A. M. A.* **121**:806-810, 1943.

5. Stieglitz, E. J. Potentialities of preventive geriatrics. *New Eng. J. Med.* **225**:247-254, 1941.
6. *Idem. Report of a Survey of Active Studies in Gerontology.* 62 pp. Unit on Gerontology, Division of Chemotherapy, National Institute of Health, Bethesda, Maryland: United States Public Health Service, 1942.
7. Meyer, J., Sorter, H., Oliver, J., and Necheles, H. Studies in old age: intestinal absorption in old age. *Gastroenterology* **1**:876-881, 1943.
8. Cowdry, E. V. *Problems of Ageing: Biological and medical aspects.* Second edition. 936 pp. Baltimore: Williams & Wilkins Company, 1942.
9. Boas, E. P. *Treatment of the Patient Past Fifty.* Second edition. Chicago: The Year Book Publishers, Inc., 1944.
10. Stieglitz, E. J. *Geriatric Medicine: Diagnosis and management of disease in the aging and in the aged.* 887 pp. Philadelphia: W. B. Saunders Company, 1943.
11. Thewlis, M. W. *The Care of the Aged (Geriatrics).* Third edition. 579 pp. St. Louis: C. V. Mosby Company, 1941.
12. Mueller-Deham, A., and Rabson, S. M. *Internal Medicine in Old Age.* 396 pp. Baltimore: William Wood & Company, 1942.
13. Lawton, G. *New Goals for Old Age.* New York: Columbia University Press, 1943.
14. *Zeitschrift für Altersforschung: Organ für Erforschung der Physiologie und Pathologie der Erscheinungen des Alterns.* Vol. 1, July, 1938. Dresden and Leipzig: Theodor Steinkopff, 1938.
15. Symposium on geriatrics. *M. Clin. North America* **24**:1-164, 1940.
16. *Symposium: Medical Problems of Old Age (University of Pennsylvania Bicentennial Conference).* Philadelphia: University of Pennsylvania Press, 1941.
17. Symposium on geriatrics. *Nebraska M. J.* **28**:69-83, 1943.
18. Tuohy, E. L. Nutrition in geriatric medicine. *Journal-Lancet* **64**: 173-178, 1944.
19. Christison, R. Investigation of deaths in standard assurance company. *Monthly J. M. Sc.* **17**:104-142, 1853.
20. Aschoff, L. Zur normalen und pathologischen Anatomie des Greisenalters. 1. Zur Statistik der Todesursachen im Greisenalter. *Med. Klin.* **33**:257, 1937.
21. Nebendahl, G. Über Todesursachen bei Greisen. *Ztschr. f. Altersforsch.* **1**:225-234, 1939.
22. Simms, H. S. Problems of aging and of vascular diseases. *Science* **95**:183-186, 1942.
23. Barker, L. F. Senile patient. *Ann. Int. Med.* **6**:1125-1135, 1933.
24. Groddeck, H. Sektionsbefunde bei über Achtzigjährigen. *Ztschr. f. Altersforsch.* **1**:238-255, 1939.
25. Roesler, H. Clinical roentgenology of cardiovascular system. 343 pp. Springfield, Illinois: Charles C Thomas, 1937. P. 21.
26. Müller. Cited by Smith.[31]
27. Gray, H. *Anatomy of the Human Body.* 1396 pp. Twentieth edition. Philadelphia: Lea & Febiger, 1918. P. 526.
28. Sagebiel, H. Über die Blutversorgung des alternden Herzens. *Virchows Arch. f. path. Anat.* **294**:147-158, 1934.
29. Rosahn, P. D. Weight of normal heart in adult males. *Am. J. Path.* **17**:595-597, 1941.
30. Willius, F. A., and Smith, H. L. Further observations on heart in old age: postmortem study of 381 patients aged seventy years or more. *Am. Heart J.* **8**:170-181, 1932.
31. Smith, H. L. Relation of weight of heart to weight of body and of weight of heart to age. *Am. Heart J.* **4**:79-93, 1928.
32. Kirch, E. Über gesetzmässige Verschiebungen der inneren Grössenverhältnisse des normalen und pathologisch veränderten menschlichen Herzens. *Ztschr. f. ang. Anat.* **7**:235-384, 1920.
33. Karsner, H. T. Involutionary changes in cardiovascular system. In *Symposium: Medical Problems of Old Age.*[16] Pp. 17-26.
34. Willius, F. A. Cardiac clinics: clinical diagnosis of mild grades of calcareous stenosis of aortic valve. *Proc. Staff Meet., Mayo Clin.* **18**:259-261, 1943.
35. Karsner, H. T., and Koletsky, S. Calcific sclerosis of aortic valve. *Tr. A. Am. Physicians* **55**:188-195, 1940.
36. White, P. D., and Bland, E. F. Mitral stenosis after eighty, with especial reference to Dr. Herman F. Vickery. *J. A. M. A.* **116**: 2001-2004, 1941.
37. Warthin, A. S. Pathology of aging process. *Bull. New York Acad. Med.* **4**:1006-1046, 1928.
38. Schlesinger, M. J. Unpublished data.
39. Hastings, A. B., Blumgart, H. L., Lowry, O. H., and Gilligan, D. R. Chemical changes in heart following experimental temporary coronary occlusion. *Tr. A. Am. Physicians* **54**:237-243, 1939.
40. Miller, A. M., and Perkins, O. C. Elastic tissue of heart in advancing age. *Am. J. Anat.* **39**:205-217, 1927.
41. Hirsch, E. F., and Weinhouse, S. Role of lipids in atherosclerosis. *Physiol. Rev.* **23**:185-202, 1943.
42. Rafsky, H. A., and Newman, B. Cholesterol studies in aged. *J. Lab. & Clin. Med.* **27**:1563-1566, 1942.
43. Snapper, I. *Chinese Lessons to Western Medicine.* 380 pp. New York: Interscience Publishers, Inc., 1941. P. 160.
44. Schlesinger, M. J. Relation of anatomic pattern to pathologic conditions of coronary arteries. *Arch. Path.* **30**:403-415, 1940.
45. Akerson, I. B., Dias, J. F., Jr., and Monroe, R. T. Incidence of coronary artery sclerosis in aged. *New Eng. J. Med.* **217**:622-624, 1937.
46. Blumgart, H. L., Schlesinger, M. J., and Zoll, P. M. Angina pectoris, coronary failure and acute myocardial infarction: role of coronary occlusion and collateral circulation. *J. A. M. A.* **116**: 91-97, 1941.
47. Sappington, S. W., and Cook, H. S. Radial artery changes in comparison with those of coronary and other arteries. *Am. J. M. Sc.* **192**:822-839, 1936.
48. Boas, E. P. Aging of cardiovascular system. *Bull. New York Acad. Med.* **16**:607-617, 1940.
49. Humphry, G. M. *Old Age: The results of information received respecting nearly nine hundred persons who had attained the age of eighty years, including seventy-four centenarians.* 218 pp. Cambridge, England: MacMillan & Bowes, 1889.
50. Gilbert, N. C. Increase of certain vagal effects with increased age. *Arch. Int. Med.* **31**:423-432, 1923.
51. Sigler, L. H. Hyperactive cardioinhibitory carotid-sinus reflex as aid in diagnosis of coronary disease: its value compared with that of electrocardiogram. *New Eng. J. Med.* **226**:46-51, 1942.
52. Freedberg, A. S., and Riseman, J. E. F. Unpublished data.
53. Lewis, W. H., Jr. Changes with age in cardiac output in adult men. *Am. J. Physiol.* **121**:517-527, 1938.
54. Cannon, W. B. Homeostasis in senescence. *J. Mt. Sinai Hosp.* **5**: 598-606, 1939.
55. Benedict, F. G., and Root, H. F. Physiology of extreme old age. *New Eng. J. Med.* **211**:521-536, 1934.
56. Myers, J. A., and Cady, L. H. Studies on respiratory organs in health and disease. XIII. Effects of senility on vital capacity of lungs. *Am. Rev. Tuberc.* **9**:57-64, 1924.
57. Miller, I. Vital capacity studies in aged. *J. Lab. & Clin. Med.* **27**: 737-740, 1942.
58. Kaltreider, N. L., Fray, W. W., and Hyde, H. Effect of age on total pulmonary capacity and its subdivisions. *Am. Rev. Tuberc.* **37**:662-689, 1938.
59. Dogliotti, G. C., and Santi, M. Sull' equilibrio acido-base nella vecchiaia. *Minerva Med.* **2**:378-384, 1933.
60. Eyster, J. A. E., and Middleton, W. S. Clinical studies on venous pressure. *Arch. Int. Med.* **34**:228-242, 1924.
61. Rosen, S. R., and Smith, K. L. Role of heart disease in psychoses of senium. *Am. J. M. Sc.* **205**:48-51, 1943.
62. Lange, K., and Boyd, L. J. Objective methods to determine speed of blood flow and their results (fluorescein and acetylene). *Am. J. M. Sc.* **206**:438-448, 1943.
63. Blumgart, H. L., and Weiss, S. Studies on velocity of blood flow. VII. Pulmonary circulation time in normal resting individuals. *J. Clin. Investigation* **4**:399-425, 1927.
64. Hill, A. V., McSwiney, B. A., and Bramwell, J. C. Velocity of pulse wave in man in relation to age as measured by hot-wire sphygmograph. *Heart* **10**:233-255, 1923.
65. Hallock, P. Arterial elasticity in man in relation to age as evaluated by pulse wave velocity method. *Arch. Int. Med.* **54**:770-798, 1934.
66. Steele, J. M. Interpretation of arterial elasticity from measurements of pulse wave velocities: effect of pressure. *Am. Heart J.* **14**:452-465, 1937.
67. Sprague, H. B. Normal senile heart and diagnostic problems. In Stieglitz.[10] Pp. 371-389.
68. Garguilo and Allende. Cited by Sprague.[67]
69. Ruffin, M. de G., Castleman, B., and White. P. D. Arteriosclerotic aneurysms and senile ectasia of thoracic aorta. *Am. Heart J.* **22**: 458-468, 1941.
70. Ernstene, A. C. Cardiovascular complications of hyperthyroidism. *Am. J. M. Sc.* **195**:248-256, 1938.
71. Wolff, L. Clinical aspects of paroxysmal rapid heart action. *New Eng. J. Med.* **226**:640-648, 1942.
72. Bishop, L. F., and Bishop, L. F., Jr. Auricular fibrillation observed for twenty-five years. *J. A. M. A.* **114**:955, 1940.
73. Alvarez, W. C., and Stanley, L. L. Blood pressure in 6000 prisoners and 400 prison guards: statistical analysis. *Arch. Int. Med.* **46**: 17-39, 1930.
74. Robinson, S. C., and Brucer, M. Range of normal blood pressure: statistical and clinical study of 11,383 persons. *Arch. Int. Med.* **64**:409-444, 1939.
75. Master, A. M., Marks, H. H., and Dock, S. Hypertension in people over forty. *J. A. M. A.* **121**:1251-1256, 1943.
76. Russek, H. I. Blood pressure in aged: study of 1000 elderly male subjects. *Am. Heart J.* **26**:11-19, 1943.
77. Howell, T. H. Blood pressure and old age. *Brit. Heart J.* **4**:143-148, 1942.
78. Wiggers, C. J. Physical and physiological aspects of arteriosclerosis and hypertension. *Ann. Int. Med.* **6**:12-30, 1932.
79. Riseman, J. E. F., and Brown, M. G. Sedimentation rate in angina pectoris and coronary thrombosis. *Am. J. M. Sc.* **194**:392-399, 1937.
80. Levitt, G. Electrocardiogram in aged: study of 100 men and women over age of 70 with apparently normal hearts. *Am. Heart J.* **18**: 692-696, 1939.
81. Gelman, I., and Brown, S. Electrocardiographical characterisation of heart in old age and in childhood. *Acta Med. Scandinav.* **91**: 378-396, 1937.
82. Eliaser, M., Jr., and Kondo, B. O. Electrocardiogram in later life. *Arch. Int. Med.* **67**:637-646, 1941.
83. Fox, T. T., Klements, J., and Mandel, E. E. Electrocardiographic changes in old age. *Ann. Int. Med.* **17**:236-246, 1942.
84. Taran, L. M., and Kaye, M. Electrocardiographic studies in old age. *Ann. Int. Med.* **20**:954-960, 1944.
85. Cohn, A. E. Cardiovascular system and blood. In Cowdry.[8] Pp. 111-138.
86. Faulkner, J. M., and Duncan, C. N. Significance of marked left axis deviation of electrocardiogram. *Am. J. M. Sc.* **208**:205-209, 1944.
87. Willius, F. A. Heart in old age: study of seven hundred patients seventy-five years of age and older. *Am. J. M. Sc.* **182**:1-12, 1931.
88. Marvin, H. M. Use and abuse of electrocardiogram in medical practice. *New Eng. J. Med.* **226**:213-217, 1942.
89. Warnecke, B. Elektrokardiographische Untersuchungen anscheinend Herzgesunder, die das 65. Lebensjahr überschritten haben. *Ztschr. f. Kreislaufforsch.* **31**:391-401, 1939.
90. Duthoit, A., Warembourg, H., and Pinchart. L'électrocardiogramme du vieillard. *Arch. d. mal. du coeur* **31**:34-45, 1938.
91. Freedberg, A. S., and Lewis, H. D. Unpublished data.
92. Schlesinger, M. J. Injection plus dissection study of coronary artery occlusions and anastomoses. *Am Heart J.* **15**:528-568, 1938.
93. Sprague, H. B. Clinical and electrocardiographic findings in aging heart. *Med. Ann. District of Columbia* **10**:49-56, 1941.
94. Marvin, H. M. Diagnosis of coronary-artery disease. *New Eng. J. Med.* **226**:251-254, 1942.
95. Roesler, H. *Clinical Roentgenology of the Cardiovascular System.* Second edition. 480 pp. Springfield, Illinois: Charles C Thomas, 1943. Pp. 32-35 and 60.
96. Ungerleider, H. E., and Clark, C. P. Study of transverse diameter of heart silhouette with prediction table based on teleoroentgenogram. *Abstr. Proc. Assoc. Life Insur. Med. Dir. of America* **25**:84-94, 1938.
97. Blumgart, H. L. Cardiology: I. Management of cardiac patients who require major surgery. II. Treatment of cardiac arrhythmias. *New Eng. J. Med.* **223**:765-773, 1940.

98. Wilcox, L. E., and Clagett, O. T. Surgical procedures on patients of advanced age. *Proc. Staff Meet., Mayo Clin.* **16**:795-800, 1941.
99. Brooks, B. Surgery in patients of advanced age. *Ann. Surg.* **105**: 481-495, 1937.
100. Wangensteen, O. H. Abdominal surgery in old age. *Journal-Lancet* **64**:178-183, 1944.
101. Freedberg, A. S., and Blumgart, H. L. Curable forms of heart disease. *New Eng. J. Med.* **229**:939-947, 1943.
102. Tuohy, E. L. Feeding the aged. *J. A. M. A.* **121**:42-48, 1943.
103. Burwell, C. S. Prevention or postponement of death from heart failure. *New Eng. J. Med.* **212**:108-114, 1935.
104. Dock, W. Discussion of Gold, H. Conferences on therapy: use and abuse of bed rest. *New York State J. Med.* **44**:724-730, 1944.
105. Harrison, T. R. Abuse of rest as therapeutic measure for patients with cardiovascular disease. *J. A. M. A.* **125**:1075-1077, 1944.
106. Dock, W. Evil sequelae of complete bed rest. *J. A. M. A.* 125: 1083-1085, 1944.
107. Levine, S. A. Some harmful effects of recumbency in treatment of heart disease. *J. A. M. A.* **126**:80-84, 1944.
108. Boas, E. P. Some immediate causes of cardiac infarction. *Am. Heart J.* **23**:1-15, 1942.
109. Miles, W. R. Psychological aspects of ageing. In Cowdry, [illegible] Pp. 756-784.

CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

Weekly Clinicopathological Exercises

FOUNDED BY RICHARD C. CABOT

TRACY B. MALLORY, M.D., *Editor**
BENJAMIN CASTLEMAN, M.D., *Acting Editor*
EDITH E. PARRIS, *Assistant Editor*

CASE 30481

PRESENTATION OF CASE

A fifty-seven-year-old housewife entered the hospital because of intermittent sharp pain in the lower abdomen.

The patient was perfectly well until one month before entry, when she was troubled by mild lower abdominal "cramps" of several days' duration. Her bowels remained regular, however, with at least one bowel movement a day. She noted that there was a fair amount of mucus passed with the stools. Two weeks before entry she began to have sharp colicky pains, which started in the right lower quadrant and passed across to the left lower quadrant. These caused her to double up in agony, but no nausea or vomiting was present. The pains lasted throughout the day, and with each attack she had the urge to move her bowels, though nothing was passed by rectum. Her doctor made a diagnosis of "abdominal stasis" and gave her a cathartic. This resulted in a copious bowel movement and complete relief. She continued to eat heartily and to have a daily bowel movement until one week before entry, when her bowels did not move for a day and she took a cathartic. The next day she again had an attack of lower abdominal pain similar to that of the first attack. She took several doses of milk of magnesia, which made the pain worse. Nausea and vomiting set in, and she vomited green-colored mucus. Five days before entry she had a normal bowel movement, with relief from pain. She still felt poorly, however, and had lost her appetite. Several enemas were poorly retained and brought little return. Four days before entry her doctor felt a tender "bunch" in the left lower quadrant and advocated hospitalization. She had had no further recurrences of pain and had had a daily bowel movement. No blood had been noted in the stools. She had lost an estimated 20 pounds in weight in the month before entry.

She had had a right oöphorectomy and salpingectomy for "cyst" many years before admission, followed by removal of the other internal genital organs some years later.

Physical examination showed a well-developed, rather obese woman in no apparent distress. The heart and lungs were normal. The abdomen was negative. Peristalsis was normal. There was slight tenderness in the left lower quadrant to deep palpation during pelvic examination. A firm, reddish, pedunculated mass, the size of a small pea, protruded from the depression in the apex of the vagina. Rectal examination revealed a walnut-sized, irregular, smooth, hard, painless mass on the anterior rectal wall about 10 cm. above the sphincter.

The blood pressure was 140 systolic, 80 diastolic. The temperature was 100°F., the pulse 84, and the respirations 28.

Examination of the blood showed a white-cell count of 10,000, with 90 per cent hemoglobin. The urine was acid, with a specific gravity of 1.024; it gave a + test for albumin and there were 8 red cells per high-power field in the sediment. A Hinton test was negative. The blood chemical findings were normal. X-ray films of the chest and intravenous pyelograms were negative. A barium enema showed passage of the barium through the rectosigmoid junction to the lower sigmoid, at which point there was a narrowed portion of intestine through which a thin stream of barium passed. There was a suggestion of a shelf deformity, but no evidence of ulceration (Fig. 1). Proctoscopic examination revealed normal rectal mucosa up to 13 cm., where an extraluminal obstruction was found encroaching anteriorly. The proctoscope could not be passed beyond this lesion. The mucosa immediately beneath was granular and hyperemic but intact.

On the fifth hospital day the patient developed diarrhea and a fever of 101°F. Examination at that time was essentially as before. She was given 5 gm. of sulfasuccidine three times daily, and on the tenth hospital day an operation was performed.

DIFFERENTIAL DIAGNOSIS

DR. OLIVER COPE: This patient had intestinal obstruction of one month's duration. The point of

*On leave of absence.

obstruction was the pelvic portion of the large bowel.

We are given no detailed information regarding the previous pelvic operations. I take it that these operations were not performed in this hospital and that we have neither a surgical nor a pathological report. Knowledge of the previous pelvic disease might make a difference. It might be related to the anatomic abnormality reported in the vaginal examination, or the latter may be a red herring thrown across our path, it and the previous pelvic disease having nothing to do with the present complaint. In the physical examination, the uterine cervix is not mentioned. One must therefore assume that the hysterectomy had been a total one. If this is true, the mass palpated on the anterior rectal wall did not represent the cervix but an abnormal mass.

The negative intravenous pyelogram is important. We may assume in the first place that the disease was not primary in the urinary tract and, secondly, that the lesion in the pelvis did not affect either ureter or the bladder. Had the hysterectomy been done for carcinoma of the cervix and had the mass been a recurrence of the carcinoma in the pelvis, one might well have expected the mass to have been more to one side or the other and to have produced obstruction of one of the ureters, with hydronephrosis.

It is obvious that the physician in charge made a diagnosis of incomplete obstruction. The patient was carried for ten days on sulfasuccidine in an effort to reduce the growth of organisms and, therefore, the volume of feces in the colon. Presumably the operation was for relief of the obstruction.

In order to arrive at a diagnosis it is necessary to consider all those lesions that can produce obstruction in the sigmoid. The x-ray studies as reported tend to exclude primary carcinoma of the sigmoid. Since the x-ray examination is extremely important, I shall ask Dr. Schulz if he has anything to add to the report. I trust that he will comment on the absence of ulceration and on the nature of the constriction.

DR. MILFORD SCHULZ: There is an area of narrowing in the sigmoid. I do not see the shelf that was described; it was probably a fluoroscopic observation. The portion of the lesion that is visible has a curious appearance for carcinoma, since the mucosa appears to be intact through the area.

FIGURE 1. *Roentgenogram Following Barium Enema. Arrows indicate area of narrowing in sigmoid.*

DR. COPE: Enough barium got by the loop for a satisfactory examination?

DR. SCHULZ: Yes; the bowel proximal to the narrowing is not widely dilated, and the obstruction is not complete. No diverticulums are evident.

DR. COPE: The fact that no diverticulums were visualized does not in itself exclude diverticulitis, but if the obstruction in this patient was due to diverticulitis, I should have expected a more extensive involvement of the bowel than what is present. The involved area is limited, the upper sigmoid not being involved.

DR. SCHULZ: The proctoscopic examination describes the lesion in the rectosigmoid. The lesion demonstrated here is higher up.

DR. COPE: Is there any evidence by x-ray of an extrinsic mass? I do not want to pin you down too far. Do I understand that you would not ascribe the lesion to carcinoma because of the absence of ulceration, or to diverticulitis because of the lack of involvement of the other part of the bowel?

DR. SCHULZ: I do not believe that one can rule out carcinoma, especially in view of the questionable shelf that was described. Certainly its appearance is not characteristic.

DR. COPE: From both the physical and x-ray examinations the abnormal mass was small and the area of the bowel involved was short. A malignant lesion is a better explanation than an abscess. I am not sure, however, whether the mass was intrinsic or extrinsic in relation to the sigmoid. Thus far I favor a diagnosis of primary cancer of the sigmoid, but I cannot exclude either diverticulitis of the sigmoid or an extrinsic lesion causing obstruction of the sigmoid.

In the latter category three conditions should be discussed. In the first place, endometriosis of the pelvic peritoneum can involve the sigmoid in such a way as to cause obstruction. This would be unusual in a woman past the menopause, for in the absence of continued ovarian activity the endometrial-like tissue should undergo atrophy. There are, however, endocrine sources other than the ovary for estrin-like hormones, such as the adrenal cortex. In the second place, one should consider gravitational metastases with involvement of the sigmoid. The primary lesion for such a carcinoma might be the stomach or some other organ in the upper abdomen. And, third, I should like to mention, for I have seen it once, adenoacanthoma arising in the cervix and later involving the large bowel. In 1931, I operated on a woman for what appeared to be a primary malignant tumor of the large intestine producing obstruction. Two years previously she had had an adenoacanthoma of the cervix excised surgically. At my operation an adenoacanthoma of the large bowel, presumably a metastasis from the primary lesion, was disclosed. In the absence of knowledge regarding the previous pelvic lesion, one cannot afford to make such a diagnosis. I am left with the only tenable diagnosis, that of a primary malignant tumor of the lower sigmoid.

DR. LELAND S. MCKITTRICK: Some years ago I resected a sigmoid for a woman in her early sixties; the lesion, which we had interpreted as a carcinoma, proved to be an endometriosis. There was no other evidence of ovarian activity. She had the menopause in the usual way — over a long period of years. Is there any less likelihood of endometriosis in a person with a surgical menopause than in one who has had a normal one?

DR. COPE: I should think that there was. In producing the surgical menopause, the operator would presumably have removed in his operation the majority of endometrial implants. Less tissue would have remained to contract and to produce bowel obstruction.

Was there active tumor proliferation or only scarring in your case?

DR. MCKITTRICK: There was real tumor formation. I cannot give the details of the microscopical findings, but it was more than just scarring.

DR. COPE: As I have said, there are the other endocrine sources for continued mild stimulation of the endometrium, such as the adrenal cortex.

DR. ANNE FORBES: Are you sure that no one gave this patient estrin?

DR. COPE: That is a good point. Estrin therapy after the menopause would have reactivated endometrial tissue. If this patient had received estrin in large doses, she might have developed a pelvic endometrial tumor.

DR. FRANCIS D. MOORE: So far as we know the patient had not received estrin therapy. The pelvic operation was done many years before entry. The mass in the apex of the vagina was just a mucosal tab.

DR. COPE: The tab was a red herring.

DR. MOORE: Our line of reasoning was similar to that of Dr. Cope. The mass felt by rectum and seen by proctoscopy was caused by extrinsic pressure of a neighboring loop. We thought preoperatively that it was in all likelihood a carcinoma of the sigmoid. At operation we did not find anything to change our opinion. The pelvis was surprisingly free — no mass and no extensive inflammatory or neoplastic disease. There was a small sclerosing lesion that had every appearance of an annular carcinoma of the sigmoid. A combined abdominoperineal resection was done after freeing it. After removal, the bowel was opened, and looking at it grossly, we still thought that we were dealing with a carcinoma of the sigmoid.

CLINICAL DIAGNOSIS

Carcinoma of sigmoid.

DR. COPE'S DIAGNOSIS

Carcinoma of sigmoid.

ANATOMICAL DIAGNOSIS

Diverticulitis of sigmoid.

PATHOLOGICAL DISCUSSION

DR. RONALD C. SNIFFEN: Dr. Moore removed about 48 cm. of rectum and sigmoid. The rectum was normal. Above the peritoneal reflection there was an 18-cm. segment of sigmoid, which looped down anteriorly to fix itself against the anterior portion of the sigmoid near the point of the peri-

toneal reflection. Here, there was a mass of adhesions, which apparently formed the tumor that was seen. Throughout the sigmoid there were many diverticulums, and we found that sinus tracts ran into the mass from both the distal and proximal portions of the sigmoid loops. The mass consisted of chronic inflammatory tissue and was undoubtedly due to diverticulitis. At the point where the proximal portion of the sigmoid was fixed to the inflammatory mass there was an appreciable narrowing of the lumen.

DR. COPE: Dr. McKittrick, how often do you see a sharply localized diverticulitis that is difficult to distinguish from carcinoma at operation?

DR. MCKITTRICK: I do not know, but I can tell you that I have just sent a patient home for whom at the end of operation I gave the family a poor prognosis because I thought that he had incurable carcinoma. I did not open the specimen and was overwhelmed when the report was diverticulitis. I see it infrequently enough so that I was badly fooled, but frequently enough so that it is not a rarity.

DR. COPE: The X-ray Department does better than we do. Dr. Schulz, if I am correct, was against cancer because of the appearance of the mucosa.

DR. MCKITTRICK: On the other side of the ledger is the fact that we not infrequently discover an abscess from a diverticulitis when the radiologist has found nothing.

DR. SCHULZ: We do not see a diverticulum unless it is filled with barium. In this case, the diverticulums did not fill. An intact mucosa is helpful, if you can be sure of it, and likewise, a good shelf.

CASE 30482

PRESENTATION OF CASE

A fifty-eight-year-old single nurse entered the hospital for study.

For fifteen years the patient had had intermittent sensations of fullness in the right upper quadrant of the abdomen and vague distress after meals. Nine years before admission a gastrointestinal series was negative. One year later she started to have intermittent gross melena attributed to hemorrhoids. This condition persisted. About one year before entry the distress in the right upper quadrant became severer. There were definite jaundice, light-colored stools and dark urine for one week, at the end of which time a cholecystectomy and choledochostomy were performed at a hospital in another city. Postoperatively she had a stormy course, with increasing jaundice and clay-colored stools, which eventually, however, cleared up. She apparently remained well, except for occasional bouts of epigastric distress, until ten weeks before entry when she developed pruritus, followed four weeks later by frank jaundice, increasing light-colored stools and dark-colored urine. One week before entry she was admitted to a community hospital where she was treated medically, with amelioration of the symptoms. Since the jaundice persisted, she was transferred to this hospital. She had lost 30 pounds in weight in eleven months. The only vomiting she had had was induced, and she thought that it relieved the distress in the right upper quadrant. She had had no chills or fever.

Physical examination showed a thin, deeply jaundiced woman. The lungs were clear. The heart was normal in size. The liver edge was palpable three fingerbreadths below the costal margin. Slight tenderness was elicited in the right upper quadrant, but no masses were palpable.

The blood pressure was 144 systolic, 82 diastolic. The temperature was 99°F., the pulse 76, and the respirations 20.

Examination of the blood showed a white-cell count of 5700, with 71 per cent neutrophils and 18 per cent lymphocytes; the hemoglobin was 8.5 gm. per 100 cc. The urine was normal. A blood Hinton test was negative. The stools were reddish-brown and gave a ++++ guaiac test. The serum protein was 6.2 gm. per 100 cc. The serum bilirubin was 6.65 mg. per 100 cc. direct, and 8.8 mg. indirect.

Plain films of the abdomen and chest were negative. A barium enema showed normal filling of the rectum and rectosigmoid. Just beyond the rectosigmoid junction there was a constant area of narrowing that appeared to be due to a filling defect on the superior wall of the sigmoid measuring about 4 cm. in length. On one film a shelf could be seen at the distal end of this defect. The remainder of the colon showed no abnormality. The transverse colon dipped down into the pelvis to overlay the abnormal area, which was therefore not visible in the subsequent films. Post-evacuation films showed only moderate contraction of the colon and a large amount of fecal material was still visible in it; the sigmoid was obscured by the transverse colon. In all the films the upper abdomen was unusually dense, but no soft-tissue outline was demonstrable. Reexamination of the colon after the introduction of air showed numerous small rounded areas of diminished density that may have been due to fecal material intermingled with the barium.

The patient was given several transfusions, and on the fifteenth hospital day an operation was performed.

DIFFERENTIAL DIAGNOSIS

DR. ROBERT R. LINTON: We have a patient fifty-eight years of age whose symptoms began fifteen years before entry, with fullness and distress in the right upper quadrant after meals. Nine years before entry a gastrointestinal series was done, and I presume that it was negative. The examination was probably limited to the stomach and small bowel since nothing is said about the colon. It would

be interesting to know whether she had had a barium enema at that time. The statement "One year later she started to have intermittent gross melena attributed to hemorrhoids" needs a little comment. I do not believe that one ever ought to attribute bleeding from the rectum to hemorrhoids until all other possibilities have been ruled out. It is extremely dangerous in a patient with hemorrhoids to say that the bleeding is coming only from hemorrhoids without a complete rectal and sigmoidoscopic examination, since it may be coming from a lesion higher up in the colon that is often overlooked until it becomes inoperable. One year before admission the distress in the right upper quadrant became severer and associated with it were jaundice, clay-colored stools and dark urine. At that time a cholecystectomy and choledochostomy were done at an outside hospital. The postoperative course following these operations does not seem just right for cholecystitis and cholelithiasis, in that it states that she had a stormy convalescence with increasing jaundice and with clay-colored stools, which eventually cleared up. Ordinarily when one operates on the gall bladder and drains the common duct, as I presume was done in this case, a tube is sutured into the common duct so that the patient's bile can drain externally rather than into the duodenum. If the patient were treated in this manner and if the jaundice was purely obstructive, it is surprising that she developed increasing jaundice. It is possible, of course, if the jaundice was due to intrahepatic disease, that the operation produced additional liver injury, thus causing the jaundice to become more pronounced.

DR. FRANCIS D. MOORE: I can clear up that point. She did have a tube put in, and it was after it was taken out that the jaundice appeared.

DR. LINTON: That is an important fact to know, because it probably means there was some obstruction in the distal part of the common duct, either postoperative stricture, inflammation, stone or malignant growth, that was temporarily occluding the outlet of the common duct.

The patient was apparently well for most of the following year. Ten weeks before entry to this hospital, however, she developed pruritus, and six weeks before admission, she again had jaundice, with light-colored stools and dark urine. It is interesting to note that in the previous year she had lost 30 pounds and that she had had no chills or fever. If she had had a common-duct stone I think that she probably would have had an associated cholangitis, with chills and fever. Nothing is said about pain, so that we have no clue whether or not she had a stone, provided that we base the diagnosis of cholelithiasis on colicky pain in the right upper quadrant.

To go on with the physical examination, the only thing that is to be noted is that she was jaundiced and had an enlarged liver. We have nothing else to help in the diagnosis. The hemoglobin was very low, 8.5 gm., which is probably of significance. There is one statement regarding the urine that I do not believe is correct, "The urine was normal." I cannot conceive of a patient having a serum bilirubin of 15 mg. without some bile in the urine. It is possible that she had hemolytic jaundice, in which one does not see bile in the urine, but I doubt it.

I should also like to know whether a rectal examination and a proctoscopic examination were done. From a clinical point of view I certainly cannot come to a conclusion without those examinations, especially in view of what the x-ray film of the colon showed.

DR. MOORE: Both were done. The rectal examination was negative, except for the fact that definitely gross blood was present. Proctoscopy was negative except for gross blood coming from above.

DR. LINTON: Have we the x-ray films? I never know whether to look at them or not; they usually confuse me.

DR. LAURENCE L. ROBBINS: These are confusing to say the least. I had considerable difficulty finding any films that demonstrated the lesion. So far as I can determine it is hidden in these loops of sigmoid, but on this spot film one can follow the rectum up to what is apparently the beginning of the sigmoid. Here one can see a definite shelf-like margin. On this spot film one can also see a shelf and what appears to be an area of ulceration in the center of the lesion. There is no evidence of polyposis.

DR. LINTON: I am really confused now. I had considered polyposis as a possibility because of the bleeding from the rectum. In view of the fact that neither proctoscopy nor the x-ray examination showed polyps, I must rule it out.

It seems to me that we have a patient who presented two conditions. I do not like to diagnose two conditions, and I should like to reason it out so that I can make one final diagnosis to explain the facts. This woman had obstructive jaundice and an ulcerating lesion in the rectosigmoid. I should like to know if a gastrointestinal series was done.

DR. BENJAMIN CASTLEMAN: It had been done at another hospital before she came here, and was said to be negative.

DR. LINTON: First of all, what conditions can produce jaundice in a patient who has had a cholecystectomy and a choledochostomy?

The first thing that enters my mind is the question whether she had developed stricture of the common duct secondary to the operation. That diagnosis, I believe, is a little unlikely because she was well for an interval of a year after the operation and seemed to have no evidence of jaundice during that period. It is unusual for a stricture to manifest itself a year after operation. If a patient has had damage done to the common duct, jaundice generally develops immediately or in a matter of a

few weeks or months and persists rather than lets up, as happened in this patient. So I believe that we can rule out stricture of the common duct as a cause of the recurrent jaundice.

Another possibility that one has to consider is carcinoma of the common bile duct. I believe that the history was too long for carcinoma of the bile duct. Malignant disease of the common duct usually obstructs the common duct early, and jaundice becomes pronounced in a short time — a matter of weeks.

Another possibility is carcinoma in the region of the ampulla, but I know of no way to be sure of such a diagnosis. I do not know whether one can hook up gallstones with a carcinoma in the region of the ampulla in the way that one can with a carcinoma of the gall bladder, which is practically always associated with gallstones. The fact that this patient had gallstones, and I presume that she did, makes me think that carcinoma in the region of the ampulla of Vater is a definite possibility. How are we going to explain such a diagnosis with the x-ray findings of a lesion in the rectosigmoid that is apparently malignant? Is that a justifiable conclusion?

Dr. Robbins: Yes.

Dr. Linton: I am disturbed by the fact that the lesion was not seen on proctoscopic examination. Barium enemas of the rectosigmoid are not always accurate, but I should think that if the proctoscope had been passed its full length this lesion would have been visualized.

Dr. Castleman: The first proctoscopic examination at the other hospital was unsatisfactory because there was too much fecal material. After she had been cleaned out, sigmoidoscopic examination was possible for only about 18 cm., where a right angle was encountered.

Dr. Moore: She was proctoscoped again here with the same unsatisfactory results.

Dr. Linton: Another possibility to explain the rectosigmoid lesion is a peritoneal implant from a carcinoma elsewhere in the intestinal tract that had deposited itself in the pelvis and had secondarily involved the rectosigmoid.

Another possibility that would explain the jaundice is carcinoma of the rectosigmoid with metastases to the liver. The patient had an enlarged liver, but the physical examination does not state whether it was nodular. I should expect it to have been nodular if it was so full of metastases to produce obstructive jaundice. Also, if it was due to metastatic disease, the metastases would have to be so local that they obstructed the common duct rather than the biliary radicals of the liver. I believe that is true because one can tie off 90 per cent of an animal's biliary system without its becoming jaundiced. It seems to me that, with the additional help from these statements about proctoscopy and the barium enema, one cannot rule out the diagnosis of carcinoma of the rectosigmoid. I should be a little happier, however, if it had been felt by rectal examination or had been seen by proctoscopy. The only way that I can possibly connect the jaundice with such a lesion is to assume that metastases had localized around the common duct sufficiently to produce obstruction. I am therefore going to make a diagnosis of carcinoma of the rectosigmoid, with metastases to the liver in the region of the common duct and with obstruction of the latter.

Dr. Joseph C. Aub: Does not the x-ray film show a colossal liver shadow pushing down the colon and shoving the stomach to one side?

Dr. Robbins: I cannot be sure, but I doubt it.

Dr. Aub: Does it not also show a big spleen?

Dr. Robbins: There is slight enlargement of the spleen.

A Physician: How does Dr. Linton explain the rectal bleeding eight years before entry?

Dr. Linton: I think that we have to explain it on the lesion in the rectosigmoid. It is possible to have a slowly growing lesion, although it is a little unusual.

Dr. Castleman: If she had carcinoma, one can presuppose that it started as a polyp and later became malignant; of course, she also may have had hemorrhoids.

Dr. Aub: If she had jaundice due to a neoplasm that disappeared and recurred, one has to assume that there was necrosis of the neoplasm, which relieved the tension and allowed bile to drain.

Dr. Castleman: That happens with intraductal lesions but not with those exerting extrinsic pressure. For example, a tumor of the papilla of Vater often produces intermittent jaundice.

Dr. Moore: Dr. L. S. McKittrick operated on this patient, and his reasoning was much like that of Dr. Linton except that he thought the fact that the jaundice came and went was definite evidence against a neoplastic lesion in or about the common bile duct. Even taking into consideration the mechanism that Dr. Aub mentioned, it would still seem to be nonmalignant if it was capable of fluctuating.

Clinical Diagnoses

Stricture of common duct?
Carcinoma of sigmoid.

Dr. Linton's Diagnoses

Carcinoma of sigmoid, with metastases to liver in region of common bile duct.
Obstructive jaundice.

Anatomical Diagnoses

Stricture of common bile duct, traumatic, with biliary fistula.
Obstructive jaundice.
Adenocarcinoma of sigmoid.

Pathological Discussion

Dr. Moore: At operation this patient was found to have had previous injury to the common duct that had completely destroyed 2 cm. of the duct. She had spontaneously formed a fistula in the scar tissue between the severed ends of the duct that let bile into the duodenum from time to time; the liver was enlarged because of the prolonged biliary obstruction but there was little evidence of biliary cirrhosis. In the midsigmoid was a sclerosing carcinoma.

Dr. Castleman: At the first operation Dr. McKittrick repaired the common bile duct, using a vitallium tube, and at the second operation two weeks later, he resected the sigmoid and found what proved to be a slowly growing adenocarcinoma without metastasis to the regional nodes. The lesion itself was about 4 cm. in diameter and involved about half the circumference of the bowel.

It is surprising that the radiologists, both here and at the other hospital, had a difficult time finding the lesion in the sigmoid.

Dr. Robbins: That is not hard to understand. In a markedly redundant sigmoid it is difficult to bring each loop into profile so that it can be seen in the fluoroscope. This is one of those cases, and it is surprising that the lesion was recognized at all.

Dr. Moore: The liver was not so big as it appears in one of the x-ray films. It is deceiving, I suppose, because of the angle at which the film was taken.

Dr. Castleman: Biopsy of the liver showed little parenchymal disease.

Dr. Linton: I still think it is rather unusual for traumatic stricture of the common duct to manifest itself in this way.

Dr. Moore: It was not the usual type of traumatic stricture. A portion of the duct had been injured or destroyed at the previous operation. We were amazed that there was any bile in the duodenum. When we opened it and a probe was passed into the papilla, it proceeded 2 or 3 cm. and then came to a dead end. The duct was opened at that point, and 2 cm. was found to be missing before the hepatic duct was reached.

The New England
Journal of Medicine

Formerly
The Boston Medical and Surgical Journal
Established 1828

Owned by the Massachusetts Medical Society and Published under the Jurisdiction of the Committee on Publications

Richard M. Smith, M.D., *Chairman*
James P. O'Hare, M.D. Conrad Wesselhoeft, M.D.
Oliver Cope, M.D. John Fallon, M.D.

Official Organ of
The Massachusetts Medical Society
and
The New Hampshire Medical Society

Editorial Board
Joseph Garland, M.D. A. Warren Stearns, M.D.
Shields Warren, M.D. Dwight O'Hara, M.D.
C. Guy Lane, M.D. Chester S. Keefer, M.D.
William A. Rogers, M.D. Howard M. Clute, M.D.
Stephen Rushmore, M.D. Fletcher H. Colby, M.D.
Henry R. Viets, M.D. Robert L. Goodale, M.D.
Robert M. Green, M.D. Chester M. Jones, M.D.
Charles C. Lund, M.D. Harvey R. Morrison, M.D.

Associate Editors
Thomas H. Lanman, M.D. Donald Munro, M.D.
Henry Jackson, Jr., M.D.

Walter P. Bowers, M.D., Editor Emeritus
Robert N. Nye, M.D., Managing Editor
Clara D. Davies, Assistant Editor

Subscription Terms: $6.00 per year in advance, postage paid, for the United States (medical students, $3.50 per year); Canada, $7.04 per year (Boston funds); $8.52 per year for all foreign countries belonging to the Postal Union.

Material should be received not later than noon on Thursday, two weeks before date of publication.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to the *New England Journal of Medicine*, 8 Fenway, Boston 15, Massachusetts.

THE ORGANIZATION OF MEDICAL CARE

Physicians will do well to consider carefully the two papers appearing elsewhere in this issue of the *Journal* that deal with the place of the physician in the modern world. Dr. Kretschmer presents the orthodox views of those whose ideas have dominated organized medicine in this country; namely, that the marvelous achievements of American medicine spring from the freedom allowed the individual physician and that any fundamental change in the present system of medical practice will lead to regimentation and consequent stagnation. This point of view has been widely publicized through the editorial columns of the *Journal of the American Medical Association* and the literature distributed by the National Physicians' Committee. The essence of the argument of this group is that the organization of medical care is the concern of the medical profession alone. Most physicians are familiar with the argument, and many agree with it. Nevertheless, there are other points of view, both within the profession and among the hundred and thirty million Americans who, as patients, have a very direct interest in both the quality and the cost of medical care. In considering any problem, it is always well to view it in historical perspective, and for doctors particularly it may be worth while to examine objectively the place of their profession as it appears to a member of another profession — the law — that attempts to train its practitioners to take a broad and dispassionate view of human society. For these reasons, the paper by Mr. Berge should be read and pondered — but not necessarily agreed with — before anyone arrays himself in the ranks of those who champion the rights of the individual physician as the sole arbiter of systems of medical practice.

Certain facts appear to be inescapable. First, the cost of medical care, including payment for professional service, drugs and hospitalization, constitutes a considerable portion of our national expenses; second, the costs of illness, striking the individual unexpectedly, frequently exceed his capacity to pay at that particular time; third, it is possible to insure against such risks; and, finally, more and more people are beginning to consider good medical and hospital care and adequate health protection as essential. There can be little dispute about these facts; even the National Physicians' Committee has come to the conclusion that the public wants prepaid medical care, and Dr. Kretschmer states that the medical profession "is keenly aware of the importance of increasing the distribution of good medical service to all the people."

The dispute rages not so much over what is needed as on how to achieve it. Many plans are in the air, ranging from the far-reaching provisions of the Wagner–Murray–Dingell Bill in this country and the plan for a national health service as outlined by the White Paper[1] in Britain to individual agreements between physicians and their patients to provide professional service on an annual-payment

basis. Massachusetts has been one of the states in which there has been a lot of interest in finding a way to solve the problem of the distribution of medical care more equitably both for the patient and for the doctor. The White Cross Plan, sponsored as an experiment along these lines, aroused a great deal of comment, and subsequently the Massachusetts Medical Society launched the Blue Shield Plan. It is to be hoped that the latter, which admittedly gives only partial coverage at present, will continue to evolve until far more adequate service is provided.

Basically, there are two problems with which both the public and the medical and allied professions are concerned: that of paying for medical care and that of assuring the highest quality of medical care for the most people. The first is purely an economic problem, and almost any solution is bound to benefit both the public, which bears the costs, and the physicians, nurses, hospitals and other non-tax-supported groups that provide medical service, much of it on a partial or complete charity basis. The second problem has economic, political and technologic aspects. Its technologic phase is obviously the sole concern of the medical profession, which alone has the knowledge on which to base judgments of the quality of professional service or to institute improvements in the care of patients, in institutional standards or in the training of physicians. The public, however, has a direct concern in seeing to it that advances in medicine are made available as rapidly and as widely as possible. Here is the chief source of friction, since, in order to achieve the double objective of distributing the costs of medical care most equitably and of providing the best quality of medical service to the largest number of persons, governmental intervention at either the local or the federal level is contemplated. One group believes, with some justification, that the quality of medical service available to the country as a whole is inadequate compared with what it ought to be, both as regards hospital and laboratory facilities and the professional competence of those who utilize them. The other group contends, also with some justification, that facilities may not be ideal but are adequate in most portions of the United States, that these are being constantly improved by organized medicine and that any advantage gained temporarily in the improvement of professional standards made possible by a federal scheme would soon be lost in the inevitable political regimentation that would result.

These are matters with which every physician should be concerned both as a citizen and as a doctor. The inertia of the bulk of the profession, combined with an opposition to change on the part of medical organizations, has led to a situation in which public opinion has forced the hand of the medical profession. Now the inevitability of some change is generally accepted. It is to be hoped that more local experimentation with different plans will be possible before a national health program is organized, so that the latter can be based on knowledge gained through experience. Those who wish to keep themselves informed on developments in this field should follow the reports published in the "Organization Section" of the *Journal of the American Medical Association* and should read the British White Paper, the text of the Murray–Wagner–Dingell Bill and a report to be published[2] that summarizes the ideas of those who have been particularly concerned with the development of a national health program. This is a field that should be approached with the same objectivity and detachment as a scientific experiment, so that the profession may make real contributions toward the solution of a problem with which both physicians and the general public are deeply concerned.

References

1. *A National Health Service.* A statement by the Ministry of Health and the Department of Health for Scotland. 85 pp. New York: The Macmillan Company, 1944.
2. *Principles of a Nation-Wide Health Program.* A report of the Health Program Conference. 36 pp. New York: Committee on Research in Medical Economics, 1944.

MASSACHUSETTS MEDICAL SOCIETY

COMMITTEE ON MEDICAL INFORMATION BUREAU

The appended statement has recently been forwarded to the secretaries of all district medical societies of the Massachusetts Medical Society, as well as to various hospitals.

WALTER G. PHIPPEN, *Chairman*

* * *

The Massachusetts Medical Society has established the Bureau of Clinical Information at its headquarters, 8 Fenway, Boston, as a means of augmenting its postgraduate educational effort.

The Bureau will supply information concerning the daily activities of the approved hospitals in Boston and its immediate vicinity. This information will deal with each hospital's daily schedule of operations, medical and surgical ward rounds and clinics, including the names of those presiding over these various activities and the location of the clinics. From time to time the Bureau will make available a bulletin that will list the fixed medical meetings and conferences held in the metropolitan area. This will be sent to hospitals, medical schools and physicians on request, and will be available at the Bureau. In brief, the ultimate aim of the Bureau is to serve the profession as a clearinghouse for all sorts of medical information.

The Bureau will be open from 7:00 a.m. to 10:00 a.m. and from 3:00 p.m. to 8.00 p.m., except Saturday afternoons. Information will be given by telephone.

You are requested to acquaint the physicians of your area with this new activity. No expense is involved on the part of those using this service.

ARTHUR W. ALLEN, M.D.
MICHAEL A. TIGHE, M.D.
WALTER G. PHIPPEN, M.D., *Chairman*

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

CHANGES IN ISOLATION AND QUARANTINE REQUIREMENTS

A new printing of the isolation and quarantine requirements of the Massachusetts Department of Public Health, embodying recent changes, is now ready for distribution. Copies may be obtained by writing to the department.

Since the last revision, in 1941, three additional diseases (chancroid, granuloma inguinale and lymphogranuloma venereum) have been added to the reportable list and several changes in the previous regulations have been made. The major changes are as follows:

REGULATIONS

Chancroid. Column 1, placed in table immediately after "Asiatic cholera." Column 2, "No restrictions if under continuous treatment." Column 3, "No restrictions if examination demonstrates absence of infection." Columns 4 and 5, "Same as for adults." Column 6, "No."

German measles. Column 2, amended to read, "Three days from appearance of rash."

Gonorrhea. Column 2, omitted "See 'Regulations Governing the Control of Gonorrhea and Syphilis' " and substituted "No restrictions if under continuous treatment." Column 3, "No restrictions if examination demonstrates absence of infection." Columns 4 and 5, "Same as for adults." Column 6, "No."

Granuloma inguinale. Column 1, placed in table immediately after "Gonorrhea." Column 2, "No restrictions if under continuous treatment." Column 3, "No restrictions if examination demonstrates absence of infection." Columns 4 and 5, "Same as for adults." Column 6, "No."

Lymphogranuloma venereum. Column 1, placed in table immediately after "Lymphocytic choriomeningitis." Column 2, "No restrictions if under continuous treatment." Column 3, "No restrictions if examination demonstrates absence of infection." Columns 4 and 5, "Same as for adults." Column 6, "No."

Measles. Column 3, omitted "Note 1" and substituted "No restrictions." Column 5, amended to read "No restrictions."

Meningitis, meningococcal. Column 2, amended to read, "Two weeks from onset of disease (five days in cases adequately treated with sulfonamide drugs), and thereafter until all acute symptoms have subsided."

Meningitis, other forms, such as Pfeiffer bacillus, pneumococcal, streptococcal, etc. Column 1, order of words changed to read "Meningitis: Pfeiffer bacillus, pneumococcal, streptococcal and other forms."

Scarlet fever. Column 2, amended to read: "Uncomplicated cases: Adults, two weeks; children, three weeks from date of appearance of rash. Examine nose, throat and ears to detect existence of discharge or inflammation before considering case as uncomplicated. (If upper respiratory tract symptoms appear during month after release from isolation, re-establish precautions.) Complicated cases: Four weeks and thereafter until abnormal discharge shall have ceased, swollen glands subsided or three successive cultures of abnormal discharge shall have been found free of hemolytic streptococci." Column 3, amended to read, "No restrictions except for milk handlers and schoolteachers who may continue their occupation only with special permission of the local board of health." Column 5, amended to read: "Until child lives away from home one week; no restrictions thereafter, if child continues to live away from home. Quarantined contacts living in a household with a case should be allowed to return to school at the same time as the patient is released from isolation."

Syphilis. Column 2, omitted "See 'Regulations Governing the Control of Gonorrhea and Syphilis' " and substituted "No restrictions if under continuous treatment, except as given in Note 5." Column 3, "No restrictions if examination demonstrates absence of infection." Columns 4 and 5, "Same as for adults." Column 6, "No."

Whooping cough. Column 3, omitted "Note 1" and substituted "No restrictions."

NOTES

Note 1. Incorporated in new Note 2. New Note 1 reads, "Definition of adult: Any person who has reached his eighteenth birthday is considered to be an adult for purposes of these regulations."

Note 2. Now includes old Note 1.

Note 4. Omitted entirely; substituted Note 5, renumbered.

Note 5. Changed to Note 4; substituted "Patients who have lesions of primary or secondary syphilis on exposed parts of the body or in the mouth, and are employed in any occupation requiring regular, direct contact with other persons, such as barber, hairdresser, manicurist, waiter, waitress, nursemaid, domestic, etc., shall be reported by name, address and occupation to the State Department of Public Health, unless the physician will assume responsibility for seeing that the patient discontinues such occupation until the lesions are healed."

Note 8. Omitted entirely; substituted "All of the above diseases except five should be reported to the local board of health. The five exceptions (chancroid, gonorrhea, granuloma inguinale, lymphogranuloma venereum and syphilis) should be reported directly to the State Department of Public Health on special forms, provided upon request.

IMMUNE SERUM GLOBULIN FOR MEASLES

For the past two and a half years the Division of Biologic Laboratories of the Department of Public Health has been collaborating with the Department of Physical Chemistry of the Harvard Medical School (under contract with the Office of Scientific Research and Development), the American Red Cross, the Bureau of Medicine and Surgery of the United States Navy and associated clinical and other groups in the development and use of a purified antibody fraction from human plasma. This study followed the successful purification of human serum albumin by a process developed under the same sponsorship and collaborative efforts. A number of physicians in Massachusetts have become familiar with this antibody fraction, known officially as "Immune Serum Globulin" (but known to many by the chemist's name "gamma globulin") through the preparations distributed to them from

the Children's Hospital, Boston, or the Division of Biologic Laboratories for study purposes.

The superiority of immune serum globulin for the control of measles has been well demonstrated, and the department has been looking forward to the time when this material would become available for general use. Once the proof of its usefulness had been established, the availability of immune serum globulin depended on the accumulation of sufficient reserves to take care of any possible needs of the armed forces. Such reserves are now on hand. The globulin is derived from blood donated by volunteers through the American Red Cross for the armed forces, and the Red Cross has made arrangements for the distribution of the surplus for civilian use as long as it is available (*J. A. M. A.* **125**:638, 1944). Material so distributed will be processed at cost by the commercial firms now preparing albumin for the armed forces, and will be furnished without charge to the public through state health departments or related organizations, which will bear the expense of processing and distribution. In Massachusetts the globulin is available through this department, and distribution will begin on December 1. The immune serum globulin will in every respect take the place of immune globulin (placental extract), which the department has distributed for the past ten years as an agent for the control of measles. The distribution of placental extract has therefore been discontinued. Sodium citrate solution, which has been used as an anticoagulant in the administration of parental blood for the control of measles, is also being discontinued.

Immune serum globulin is used in the same fashion as placental extract and with the same indications, that is, for the modification of measles in an exposed healthy susceptible person three years of age or older and for the prevention of measles in exposed infants under three years of age, debilitated or chronically or acutely ill older patients or groups of susceptibles in whom a measles epidemic must be avoided.

The attention of physicians is called to the fact that the globulin is most effective when given to a freshly exposed person during the first six days after the date of exposure, although some effect may be at times obtained if it is given as late as the tenth day. The globulin does not permanently immunize a child to measles: although complete immediate protection is usually obtained to exposure, the child again becomes susceptible in three or four weeks. If, on the other hand, modified or unmodified measles occurs, permanent immunity is usually conferred by the attack. Detailed directions for use of the immune serum globulin are included in each package.

The globulin will be distributed through the usual channels — to local boards of health having approved biologic depots or directly to physicians, hospitals or other institutions unable to obtain their needs through their local boards of health. Physicians and others obtaining supplies of this product are urgently requested to keep their orders within their probable needs for a period of two or three weeks. Since the Department has to purchase the globulin, the supply is limited, and it is essential that the available supply be distributed as equitably as possible.

COMMUNICABLE DISEASES IN MASSACHUSETTS FOR OCTOBER, 1944

Résumé

Diseases	October 1944	October 1943	Seven-Year Median
Anterior poliomyelitis	99	54	19
Chancroid	1	*	*
Chicken pox	370	485	390
Diphtheria	19	17	18
Dog bite	842	703	812
Dysentery, bacillary	32	24	24
German measles	36	82	35
Gonorrhea	438	435	416
Granuloma inguinale	0	*	*
Lymphogranuloma venereum	1	*	*
Malaria	36	16	0
Measles	276	401	373
Meningitis, meningococcal	22	40	6
Meningitis, Pfeiffer-bacillus	3	8	1
Meningitis, pneumococcal	1	4	†
Meningitis, staphylococcal	0	0	†
Meningitis, streptococcal	0	0	†
Meningitis, other forms	3	0	†
Meningitis, undetermined	0	13	†
Mumps	350	158	199
Pneumonia, lobar	159	161	219
Salmonella infections	15	14	4
Scarlet fever	459	622	372
Syphilis	408	380	424
Tuberculosis, pulmonary	249	225	236
Tuberculosis, other forms	17	12	29
Typhoid fever	1	4	6
Undulant fever	2	6	5
Whooping cough	287	321	420

*Made reportable in December, 1943.
†Pfeiffer-bacillus meningitis only other form reportable previous to 1941

Comment

No unusual trends are indicated by the figures for October. The usual seasonal increase of several of the diseases has not as yet become marked enough to indicate which are likely to be high during the coming year. Measles and scarlet fever are unusually low because of the downward swing after two years of high prevalence.

Poliomyelitis during October, although still much above the seven-year median, showed a marked decrease from the August and September prevalence. The usual seasonal drop to a very low level may be expected in succeeding months.

Meningococcus meningitis continues to run well below last year's level, although still above the seven-year median. The same is true, to a lesser degree, of scarlet fever.

Geographical Distribution of Certain Diseases

Anterior poliomyelitis was reported from: Amherst, 1; Arlington, 2; Barre, 2; Beverly, 1; Boston, 16; Boylston, 1; Brockton, 2; Brookline, 1; Cambridge, 1; Chelsea, 1; Chicopee, 6; Dedham, 1; Everett, 1; Fitchburg, 1; Framingham, 2; Greenfield, 1; Hancock, 1; Hanover, 1; Haverhill, 1; Hingham, 2; Lee, 1; Ludlow, 2; Lynn, 1; Medford, 1; Natick, 2; Newburyport, 1; Newton, 6; Orange, 1; Pepperell, 1; Pittsfield, 15; Reading, 3; Revere, 2; Somerville, 1; Springfield, 1; Stockbridge, 1; Swampscott, 1; Waltham, 1; Watertown, 2; Webster, 1; Weymouth, 2; West Brookfield, 1; West Stockbridge, 1; Worcester, 6; total, 99.

Diphtheria was reported from: Boston, 3; Cambridge, 2; Everett, 1; Lowell, 5; Somerville, 7; Worcester, 1; total, 19.

Dysentery, bacillary, was reported from: Billerica, 1; Boston, 4; Fall River, 6; Lexington, 8; Lowell, 1; Malden, 5; Medford, 2; Peabody, 1; Plainville, 2; Somerville, 1; Stoneham, 1; total, 32.

Encephalitis, infectious, was reported from: Springfield, 1; total, 1.

Malaria was reported from: Boston, 1; Cambridge, 2; Camp Edwards, 4; Chelsea, 2; Chicopee, 1; Cushing General Hospital, 20; Lowell, 1; Peabody, 1; Revere, 1; Somerville, 1; Waltham, 2; total, 36.

Meningitis, meningococcal, was reported from: Abington, 1, Barnstable, 2; Boston, 8; Chelsea, 1; Fall River, 1; Fitchburg; 1; Hardwick, 1; Kingston, 1; Leominster, 1; Malden, 1; Middleboro, 2; Palmer, 1; Westfield, 1; total, 22.

Meningitis, Pfeiffer-bacillus, was reported from Lee, 1; Pittsfield, 1; Salem, 1; total, 3.

Meningitis, pneumococcal, was reported from: Cambridge, 1; total, 1.

Meningitis, other forms, was reported from: Boston, 3; total, 3.

Salmonella infections were reported from: Attleboro, 1; Boston, 1; Cambridge, 1; Everett, 1; Lynn, 1; Melrose, 1; Newburyport, 1; Pittsfield, 1; Walpole, 1; Waltham, 1; Watertown, 1; Wellesley, 1; West Stockbridge, 1; Worcester, 2; total, 15.

Septic sore throat was reported from: Amesbury, 1; Arlington, 1; Boston, 4; Cambridge, 1; Fall River, 1; total, 8.

Tetanus was reported from: Boston, 1; Medway, 1; Pittsfield, 1; Wareham, 1; total, 4.

Trachoma was reported from: Arlington, 1; total, 1.

Trichinosis was reported from: Andover, 1; Boston, 2; Brookline, 1; Falmouth, 1; Melrose, 1; total, 6.

Typhoid fever was reported from: Tewksbury, 1; total, 1.

Typhus fever was reported from: Camp Myles Standish, 1; total, 1.

Undulant fever was reported from: Boston, 2; total, 2.

CONSULTATION CLINICS FOR CRIPPLED CHILDREN IN MASSACHUSETTS UNDER THE PROVISIONS OF THE SOCIAL SECURITY ACT

Clinic	Date	Clinic Consultant
Lowell	December 1	Albert H. Brewster
Salem	December 4	Paul W. Hugenberger
Haverhill	December 13*	William T. Green
Brockton	December 14	George W. Van Gorder
Worcester	December 15	John W. O'Meara
Pittsfield	December 18	Frank A. Slowick
Fall River	December 18*	Eugene A. McCarthy
Hyannis	December 19*	Paul L. Norton
Springfield	December 20	Garry deN. Hough, Jr.

*Day changed.

MISCELLANY

ATYPICAL PNEUMONIA SIMULATING PULMONARY TUBERCULOSIS

A new disease of the respiratory tract has captured a place on the medical scene during the past decade. Primary atypical pneumonia — to give it the name that seems most commonly used — has probably existed for years masquerading as atypical influenza or grippe. With the increasing use of x-ray films in diagnosis the prevalence of the disease has begun to emerge, and its importance to be recognized. The danger would now appear to be that it is as yet incompletely differentiated from pulmonary tuberculosis and that, unless progress film studies are carried out, some cases of tuberculosis will be treated for pneumonia and some cases of pneumonia given tuberculosis therapy. The following is an abstract of a paper (Yoskalka, J. S. A typical pneumonia simulating pulmonary tuberculosis. *Am. Rev. Tuberc.* 49:408-413, 1944) that considers this problem.

* * *

For many years it has been the teaching of the medical profession to regard a patient subacutely ill with infiltrations of the upper lung fields in x-ray films as probably tuberculous unless proved otherwise. Recently it has become apparent that atypical pneumonia can produce lesions that at times are indistinguishable from pulmonary tuberculosis. This has been reported on several occasions. With the apparent increase in the incidence of atypical pneumonia, especially since the profession is becoming more conscious of it, it is evident that criteria for a differential diagnosis of these two conditions should be formulated.

Clinical Observations

The symptoms and clinical signs of atypical pneumonia have been adequately described in the current literature. The usual gradual onset of the disease, associated with malaise, generalized aches and pains, dry, nonproductive cough and fever may be simulated by any case of acute pneumonic tuberculosis. A differential diagnosis cannot be made solely on the basis of the history and physical examination. Where serial roentgenograms are not feasible, the persistence of cough and expectoration, together with the finding of rales for a period greater than twenty-one days from the onset of the disease, should lead one to suspect tuberculosis, even though the patient appears to be much improved.

Roentgenologic Aspects

In our 7 cases of upper-lobe atypical pneumonia two types of shadows were found on the films. The most frequent was an increase in the bronchial markings manifested by linear streaking densities with superimposed mottled shadows. This was most marked at the hilum and, with an extension of the disease, spread toward the periphery of the lung fields. The other type of finding was an area of increased tissue density in the parenchyma of the lung relatively uniform throughout and resembling the shadow seen in early pleural effusion. X-ray evidence of atelectasis was found in our cases only when the entire right upper lobe was involved. Complete involvement of an upper lobe will usually reveal some associated evidence of atelectasis, whereas in complete consolidation of a lobe due to pneumonic tuberculosis this is usually not the case. Because there was such a wide divergence of roentgenologic findings in our cases of atypical pneumonia it was thought that we could not make a definite differential diagnosis from a single film. In serial x-ray studies it was observed that cases of atypical pneumonia could be expected to show complete clearing of the chest involvement in from four to twenty days. If the serial roentgenograms still reveal a density twenty days after the onset of the illness, pulmonary tuberculosis must be seriously considered even if other evidence favors an x-ray diagnosis of atypical pneumonia.

Case Reports

Case 1. A white soldier was admitted to hospital with a 1-day history of generalized aches and pains, headache, malaise, fever and chilly sensations. The physical findings were normal except for a moderate injection of the pharynx; the temperature was 100°F., the pulse rate 82, and the respirations 20 per minute. The white-blood-cell count was 9200, with 72 per cent polymorphonuclears. The working diagnosis was influenza. The patient continued to run a fever reaching 103.8°F. 2 days later. Within 4 days he had developed a nonproductive cough. Physical examination at that time revealed suppressed breath sounds with an occasional fine moist rale in the right upper lobe. An x-ray film of the chest showed complete consolidation of the right upper lobe. This had almost completely cleared within a week's time, although the fever persisted somewhat longer. Recovery was uneventful and the patient was discharged to duty on the 20th hospital day.

Comment. This case illustrates the difficulty of making a definite diagnosis roentgenologically. Bacteriologic examinations were negative, and the rapid clearing of the lesion ruled out tuberculosis.

Case 2. A white soldier was admitted to the hospital with a 2-day history similar to that above. The admission temperature was 101°F., the pulse rate 100, and the respirations 20 per minute. The white-blood-cell count was 6800 with 64 per cent polymorphonuclears. The working diagnosis was influenza. A film of the chest made 4 days following the onset of the illness showed marked increase in the hilar shadow with marked mottled densities throughout the right upper lobe. In one area there was a shadow with a central high light suggestive of cavitation. The film made 15 days following onset showed complete clearing of the parenchymal lesions.

Because of the x-ray film suggesting cavitation, sputum and gastric studies were made. All were found to be negative for tubercle bacilli. The patient made an uneventful recovery and was discharged on the 22nd hospital day.

CASE 3. A white soldier was admitted to the hospital with a history and physical findings similar to Cases 1 and 2. The working diagnosis was atypical pneumonia of the right upper lobe. This was confirmed by roentgenogram. The patient had a low-grade fever for 8 days following admission. A roentgenogram taken on the 11th hospital day showed some clearing of the pneumonic process. Since the persistence of physical signs in the chest and the slow clearing of the chest lesion despite clinical improvement of the patient are not usual in atypical pneumonia, sputum examinations were begun. Tubercle bacilli were found. This was confirmed in later examinations of the sputum.

Summary

Atypical pneumonia may simulate pulmonary tuberculosis both clinically and roentgenographically, and the reverse is equally true.

Approximately 7 to 10 per cent of atypical pneumonias have upper-lobe involvement, which is the usual site for pulmonary tuberculosis.

Serial roentgenograms showing apical lesions failing to clear in twenty days following the onset of the disease should raise the suspicion of pulmonary tuberculosis.

Sputum studies for tubercle bacilli are indicated in all doubtful cases.

If lesions persist for twenty days from the onset of the illness, and routine sputum studies are negative, further studies should be done, that is, sputum and gastric concentrates and guinea-pig inoculation.

Because of the apparent increase in the incidence of atypical pneumonia, the need for an early differential diagnosis is imperative. — Reprinted from *Tuberculosis Abstracts* (November, 1944).

CORRESPONDENCE

"POLYPHARMACY AND ANESTHESIA"

To the Editor: In the August 3 issue of the *Journal* there appeared an editorial entitled "Polypharmacy and Anesthesia" which seems to call for some reply from those of us practising as specialists in anesthesiology. A case is cited in which preliminary to procaine-pontocaine spinal anesthesia for appendectomy in "a healthy, seventeen-year-old boy" premedication of "1/6 gr. of morphine, 1/200 gr. of scopolamine and 2 gr. of Sodium Luminal" was given "by injection." Information is lacking as to the intervals before induction of anesthesia at which these drugs were administered, as is any statement about the dosage of procaine and pontocaine or the spinal level attained by the subarachnoid block. Respiratory depression or failure supervened fifteen minutes after induction of anesthesia, and was ascribed by the writer of the editorial to the preliminary medication. Although it seems much more likely, on the basis of the account, that the respiratory difficulty was caused chiefly if not entirely by the ascent of the spinal drugs to a high level, and not by the medication, pharmacologic questions are raised that should be answered. "One wonders how the anesthetist knows that 1/200 gr. of scopolamine is going to contribute to the success of this procedure. Would not ¼ gr. or even ⅓ gr. of morphine achieve approximately the same effect? One also wonders, but not so seriously, whether the Sodium Luminal was necessary?"

To answer these queries in order: The anesthesiologist knows from his clinical experience and from his knowledge of pharmacology that 1/200 gr. of scopolamine will probably contribute to the success of spinal anesthesia. One quarter or one third of a grain of morphine would *not* achieve approximately the same effect, because the pharmacologic effects of morphine differ fundamentally from those of scopolamine. It could be said that the Sodium Luminal (phenobarbital) is not absolutely necessary, but it contributes to the comfort and safety of the patient.

The combination and dosage of the three drugs mentioned, far from being "a practically fatal combination of sedatives," is commonly prescribed by anesthesiologists and is well within the limits of safety. Each is employed for a definite purpose. The barbiturate, in addition to its soporific effect, protects against possible toxic reaction to the local anesthetic drugs. Goodman and Gilman[1] state: "Soporific doses of the barbiturates are only slightly depressant to the respiration; [while] morphine is a primary and continuous depressant of respiration by virtue of a direct action on the respiratory center. The effect is discernible with small doses insufficient to produce sleep or disturb consciousness. The action is a highly selective one, and the depression is directly proportional to the dose."

Sedation produced by the combination of the two drugs in moderate dosage results in less respiratory depression than would result from a large dose of morphine alone.

Scopolamine, although apparently considered by the writer of the editorial as a sedative, in reality belongs to the atropine group of drugs. We again quote Goodman and Gilman[1]: "Scopolamine, like atropine, has a potent inhibitory action on secretions, but in addition, the alkaloid is also a depressant of the central nervous system and reduces excitement. Scopolamine is often viewed as a respiratory depressant, but this action on the medullary center has been exaggerated. Indeed strong evidence from clinical experiments of Waters and his associates[2] indicates that the depression of breathing by morphine can be completely counteracted by doses of scopolamine, so that otherwise poisonous amounts of morphine may be administered to man without lowering the normal respiratory exchange."

It appears unprofitable to discuss the opinions expressed in the latter part of the editorial. We hope that the opening paragraph better reflects the beliefs of the majority of members of the medical profession: "The scientific advances in anesthesia in the last decade have been truly spectacular, and largely because of them, surgeons have been able to operate successfully in many regions of the body previously inaccessible. Furthermore, the safety of other operative procedures has been increased by these new methods, provided they are expertly applied."

SIDNEY C. WIGGIN, M.D.
Boston City Hospital and Faulkner Hospital
WILLIAM A. NOONAN, M.D.
St. Elizabeth's Hospital
ELEANOR B. FERGUSON, M.D.
Massachusetts Memorial Hospitals
JULIA G. ARROWOOD, M.D.
Massachusetts General Hospital
LEO V. HAND, M.D.
Lahey Clinic

REFERENCES

1. Goodman, L., and Gilman, A. *The Pharmacological Basis of Therapeutics*. 1383 pp. New York: The Macmillan Company, 1941.
2. Waters, R. M. Study of morphine, scopolamine and atropine and their relation to preoperative medication and pain relief. *Texas State J. Med.* 34:304, 1938.

To the Editor: The editorial "Polypharmacy and Anesthesia," which appeared in the August 3 issue of the *Journal*, contains so many statements at variance with commonly accepted opinions concerning preoperative sedation that it seems wise to call them to your attention. In addition to the somewhat obvious inaccuracies in this article, the entire tone of the editorial is such as to reflect on an important medical specialty.

The editorialist seemed most concerned about what he considered to be too much preoperative sedation administered to a certain patient. One-sixth grain of morphine, 1/200 gr. of scopolamine and 2 gr. of Sodium Luminal could not be considered heavy medication for a healthy, seventeen-year-old male patient. It seems that the scopolamine was the drug considered to be the offender.

Since the editorial betrayed little appreciation of the purpose of preoperative medication and the action of the respective drugs used, a few words on the subject appear appropriate. The ideal premedication should allay the patient's fears of the operating room and produce a state of relative amnesia for the period. Furthermore, if an inhalation anesthetic is to be used (and this sometimes has to be resorted to even when not planned), the preoperative medication should lower the metabolic rate in order to facilitate induction and lessen the amount of anesthetic agent required to obtain the desired level of anesthesia. The preoperative medication should do all of this without sufficiently depressing respiration as to slow the absorption of the anesthetic agent and of oxygen or to predispose to postoperative pulmonary complications because of this depressed respiration and obtunded cough reflex. Morphine is an excellent drug

for depressing metabolism and allaying fear. Unfortunately, given in doses large enough to produce amnesia it frequently causes respiratory depression. By the addition of scopolamine (in doses as low as 1/200 gr.) the patient can frequently be rendered amnesic for the period immediately before the trip to the operating room and for his stay there. Scopolamine has the effect of producing a "don't care" state of mind even though the patient may be quite alert. Furthermore, scopolamine is as effective as, if not superior to, atropine in inhibiting secretions from the mucous membranes. Since this drug does not cause respiratory depression in therapeutic doses, it is an excellent adjuvant to morphine for preoperative medication. The addition of small doses of a barbituric acid derivative (2 gr. of Sodium Luminal in the case mentioned) frequently helps to render the patient unconscious during the operative procedure.

In the editorial it is stated that fifteen minutes after the administration of the anesthetic agent, the anesthetist was busy giving artificial respiration and the nurse was giving coramine subcutaneously. It is hard to understand how this respiratory difficulty could have been due to the preoperative sedation with the patient breathing twelve to fifteen times a minute after what was probably a brief operative procedure. It would also seem that a drug depression serious enough to require artificial respiration would have been noted before the anesthetic was given.

From the small amount of information given in the article it seems a much likelier conclusion that the spinal anesthetic agent had progressed far enough cephalad to paralyze some or all of the intercostal muscles or even the diaphragm, and by the time the operation was completed, this paralysis had worn off sufficiently to permit spontaneous respiration. If this conclusion is correct, the administration of the coramine was superfluous, since the only effective treatment for this condition is artificial respiration after the establishment of an adequate airway.

The proportions of the various drugs used for preoperative sedation have been arrived at after very careful pharmacologic and clinical research. It is quite obvious that the ideal dose cannot always be selected and that there will always be some patients in whom the effect produced by the preoperative sedation will be too profound, as well as some for whom the ordered dose will be insufficient. Fortunately, in the hands of experienced anesthesiologists who are able to recognize quickly the signs of undersedation and oversedation, as well as the effects of spinal anesthetics that have gone too high, the ill effects of these inadvertent administrations can be taken care of without danger to the patient or impairment of the surgeon's work.

It is to be hoped that the opinion expressed by the author of the editorial in question does not represent the consensus of a large group of surgeons. I am sure that such an attitude can but tend to reflect discredit on an important medical specialty, and indirectly be disadvantageous to patients undergoing surgical procedures.

URBAN H. EVERSOLE, M.D., *Director*
Department of Anesthesia
Lahey Clinic
Boston

To the Editor: It is the opinion of the undersigned that several of the statements and implications made in the editorial entitled "Polypharmacy and Anesthesia" appearing in the August 3 issue of the *Journal* are misleading.

The writer of that editorial "wonders how the anesthetist knows that 1/200 gr. of scopolamine is going to contribute to the success of the anesthesia." He further states that the anesthetist should "limit himself to a moderate dose of a sedative, together with a suitable dose of atropine or some substance having the pharmacologic effect of atropine."

A little reading in preparation for the editorial would have disclosed that scopolamine is a valuable sedative and that it effectively counteracts the respiratory depressant action of morphine if given in proper dosage. A short perusal of a text on pharmacology would have revealed that scopolamine in fact does have many of the valuable pharmacologic effects of atropine.

The fact that Sodium Luminal was given is lightly glossed over by the writer of the editorial. Long-acting barbiturates are usually not indicated as preanesthetic drugs.

The writer of the editorial, if he were at all familiar with anesthetic practices, would have been more concerned with the action of spinal anesthesia in producing respiratory paralysis in this case rather than with attacking so strongly the preanesthetic drugs.

The use of coramine and carbon dioxide in the treatment of the respiratory depression as described is open to criticism.

The fact that satisfactory tidal exchange was established and maintained is a credit to the anesthetist.

The statement is made that when nurse technicians are employed to administer the anesthesia, heavy premedication is avoided because the surgeon gives the orders. This may be the experience of the one who wrote the article, but it is by no means universal.

The editorial recommends that the surgeon, in order to protect his patient, consult with the anesthesiologist in detail concerning each step of medication given before, during and after operation. It is certainly to be hoped that the surgeon will consult with the anesthesiologist in detail about each patient about to undergo anesthesia and surgery. For the better and fuller protection of the patient, I suggest that the surgeon choose a thoroughly qualified anesthetist and depend on the anesthesiologist's more thorough knowledge of sedatives to safeguard the patient against accidents. There is no clinician more familiar with the pharmacologic action of narcotics and hypnotics than the anesthesiologist.

It is stated that in the present state of anesthesia, there is too much art and not enough science. With this statement I take strong issue. An increase in the art and a tempering of the science of anesthesia would elevate the present status of this practice.

MEYER SAKLAD, M.D.
Director of Anesthesia
Rhode Island Hospital
Providence 2, Rhode Island

The above letters are typical of many that have been received from anesthesiologists in criticism of the editorial "Polypharmacy and Anesthesia." The editorial presented an abbreviated case report, and from the events described therein, it was deduced that the premedication was chiefly responsible for the alarming symptoms. It was assumed that the slow shallow respirations subsequent to the period of apnea were caused by this medication. This interpretation is questioned by expert pharmacologic opinion, and it appears likelier that the apnea and the depressed respirations were the result of a spinal anesthesia that had progressed too high. For this, the *Journal* humbly apologizes.

Nevertheless, it should still be pointed out that there is a large body of medical opinion, found perhaps more among surgeons than among anesthetists, that simplification of premedication is a goal to be sought in future advances in anesthesia. Although the excellent human experimental work of Waters and his associates referred to in the letter from the group of Boston anesthetists has indicated that combinations of morphine and scopolamine and of Pentobarbital Sodium and scopolamine are useful and, in moderate doses, safe, there are no similar studies in which the triple combination of morphine, scopolamine and a barbiturate has been given. In fact, as indicated by Dr. Saklad's letter, some anesthetists do not approve a combination of a long-acting barbiturate and morphine in premedication.

The discussion evoked by the editorial can do nothing but good. If it can be followed up by additional experimental work and by careful observation and analysis of large numbers of cases, it may be possible to work out a universally acceptable simple form of premedication for the less intricate operative procedures in healthy patients. — ED.

BOOK REVIEWS

The Permeability of Natural Membranes. By Hugh Davson, D.Sc.; and James F. Danielli, D.Sc., A.I.C. With a foreword by E. Newton Harvey, Ph.D. 8°, cloth, 361 pp., with 73 illustrations and 72 tables. New York: The Macmillan Company, 1943. $4.75.

The great usefulness of this book will be obvious to all students of biology. The authors present a general survey of the field of permeability, including materials essential for students of medicine, physiology, biochemistry, zoology and botany. It is made clear that permeability studies have passed beyond the preliminary exploratory stage, having

reached the stage at which quantitative analysis is of dominant importance. In the foreword, Professor E. Newton Harvey, of Princeton University, writes in part: "Just as chemistry could not have developed without test tubes to hold reacting substances, so organism could not have evolved without relatively impermeable membranes to surround the cell constituents. This barrier between the inside and the outside, the inner and external world of each living unit, has been and always must be considered one of the fundamental structures of a cell." Each of the twenty-one chapters is followed by a series of references, and an excellent index is provided. The last chapter deals with the theories of cell permeability.

Traumatic Injuries of Facial Bones: An atlas of treatment. By John B. Erich, D.D.S., M.D., and Louie T. Austin, D.D.S. In collaboration with the Bureau of Medicine and Surgery, United States Navy. 12°, cloth, 600 pp., with 333 illustrations. Philadelphia and London: W. B. Saunders Company, 1944. $6.00.

In this book the authors attempt to present a manual for the treatment of injuries of the facial bones. General considerations are covered in eleven printed pages. As the subtitle suggests, the book is a pictorial of treatment. The illustrations are well done, and should appear clear to the student, but many seem exaggerated in showing the nature of the wounds.

The methods of immobilizing the facial bones are described in great detail, and the authors explain many elaborate and complicated appliances for use in cases in which it seems likely that simple procedures of proved value would accomplish the same results. The book, however, is a valuable contribution to the literature on injuries of the face.

Clinical Tropical Medicine. Edited by Z. Taylor Bercovitz, M.D., Ph.D. With a foreword by Wilbur A. Sawyer, M.D. 4°, cloth, 957 pp., with 121 illustrations. New York: Paul B. Hoeber, Incorporated, 1944. $14.00.

This book contains chapters by twenty-seven authors who are well known for their work in the field of tropical medicine. The editor of the volume, Dr. Bercovitz, has also contributed chapters on many of the important tropical diseases, including amebic dysentery, malaria and certain of the helminthic diseases.

Dr. Charles F. Craig has written the chapters on spirochetes and spirilla, except pinta and yaws, which have been covered by Dr. Howard Fox. Dr. Henry Pinkerton has dealt with the diseases caused by rickettsias; Dr. Edward B. Vedder, with the nutritional diseases; and Dr. Morris Moore, with the diseases caused by yeasts and fungi. The other authors have contributed importantly but less extensively to the volume. Most of the numerous illustrations are excellent.

The book is valuable because of the authoritative contributions that it contains, but its highest levels of quality are not uniformly sustained. Here and there can be found statements that are ambiguous, misleading or incorrect. For example, under amebiasis, it is said that food and water should be boiled "for at least thirty minutes" to destroy cysts, whereas, since amebic cysts in water cannot survive a temperature of 50°C. for more than a few minutes, prolonged boiling is needless. In the chapter on malaria, a serious error occurs: it is stated there that the sporozoites "enter the blood stream and attach themselves to the red blood corpuscles." Although it is not known what happens to the sporozoite after it passes from the mosquito into the human body, it is quite possible that the parasite undergoes important changes during the interval of several days that elapse before it makes its appearance in the red cell. Finally, in the chapter on beriberi, a distinction is drawn between beriberi and "the peripheral neuritis caused by alcohol." There is no convincing evidence that peripheral neuritis in man has ever been caused by alcohol per se, most physicians now believing that it results from a dietary deficiency that is secondary to the alcoholism.

Even though the book contains passages that are open to serious criticism, it contains much that is excellent.

NOTICES

JOSEPH H. PRATT DIAGNOSTIC HOSPITAL

Bennet Street, Boston
Lecture Hall, 9–10 a. m.

MEDICAL CONFERENCE PROGRAM

Friday, December 1 — Surgical Aspects of Intracranial Infections. Dr. Jost J. Michelsen.
Wednesday, December 6 — Practical Aspects of Electro-Shock Therapy. Dr. Arthur Berk.
Friday, December 8 — Alloxan Diabetes: Clinical and morphologic findings. Dr. C. Cabell Bailey and Dr. Orville Bailey.
Wednesday, December 13 — Some Effects of Injected Cytachrome C in Animals and Man. Dr. Samuel Proger.
Friday, December 15 — The Cushing Syndrome. Dr. Kenneth W. Thompson.

On Monday mornings clinics will be given by Dr. Samuel Proger. On Tuesday and Thursday mornings Dr. S. J. Thannhauser will give medical clinics on hospital cases.

The medical profession is cordially invited to attend.

MASSACHUSETTS PSYCHIATRIC SOCIETY

On Tuesday, December 5, the Massachusetts Psychiatric Society will tender a dinner to Brigadier J. R. Reese, M.D., F.R.C.P., consulting psychiatrist to the British Army and medical director of the Tavistock Clinic, London. It will be served at 6:30 p. m. at the Kenmore Hotel, Boston. Brigadier Reese will speak on the subject, "The Shaping of Psychiatry by War," and his lecture will be of importance not only to psychiatrists and physicians but to everyone interested in the present trends in psychiatry and the associated fields, particularly in relation to the war and the postwar period.

The tickets, $2.90 each, must be purchased on or before December 2 from Dr. Earl K. Holt, Box A, Harding, Massachusetts.

HARVARD MEDICAL SOCIETY

A meeting of the Harvard Medical Society will be held in the amphitheater of the Peter Bent Brigham Hospital on Tuesday, December 12, at 8:15 p. m.

NEW ENGLAND OBSTETRICAL AND GYNECOLOGICAL SOCIETY

A clinic of the New England Obstetrical and Gynecological Society will be held at the Carney Hospital on December 6 at 9:00 a.m. in the operating room on the sixth floor. Drs. Louis E. Phaneuf, Roy J. Heffernan and Maurice O. Belson will perform gynecological operations.

At 10:30 a.m. a dry clinic will be held in the auditorium.

PROGRAM

The Repair of the Lacerated Perineum. Dr. Louis E. Phaneuf.
The Role of the Transverse Cervical Cesarean in the Management of Placenta Previa. Dr. Roy J. Heffernan.
The Management of the Third Stage of Labor. Dr. Maurice O. Belson.
Sternal Transfusions in Obstetrics and Gynecology. Dr. Meyer D. Schnall.

AMERICAN PUBLIC HEALTH ASSOCIATION

The third wartime conference and seventy-fourth annual meeting of the American Public Health Association and meetings of related organizations will be held in Chicago during the week of September 17, 1945, with headquarters in the Hotel Stevens.

The Chicago program will cover subjects of interest to health officers, public-health nurses, laboratory workers, nutritionists, vital statisticians, engineers, child-health and maternal-health specialists, health educators, public-health dentists, epidemiologists, industrial hygienists and others working in the broad field of health protection and promotion.

(*Notices continued on page xv*)

NOTICES (*Continued from page 752*)

SOCIETY MEETINGS AND CONFERENCES

Calendar of Boston District for the Week Beginning Thursday, December 7

Friday, December 8
10:50 a.m. Postgraduate clinics in dermatology and syphilis. Dowling Amphitheater, Boston City Hospital.

Saturday, December 9
*10:00 a.m.–12:00 m. Medical staff rounds. Peter Bent Brigham Hospital.

Monday, December 11
12:00 m.–1:00 p.m. Clinicopathological conference. Peter Bent Brigham Hospital.

Tuesday, December 12
*12:15–1:15 p.m. Clinicoroentgenological conference. Peter Bent Brigham Hospital.
8:15 p.m. Harvard Medical Society. Peter Bent Brigham Hospital.

Wednesday, December 13
*12:00 m. Clinicopathological conference. Children's Hospital.
7:15 p.m. Graduate seminar in pediatrics. Children's Medical Service, Massachusetts General Hospital, Amphitheater 3A.

*Open to the medical profession.

December 1 to 15. Joseph H. Pratt Diagnostic Hospital. Medical conference program. Page 752.

December 5. Massachusetts Psychiatric Society. Page 752.

December 6. New England Obstetrical and Gynecological Society. Page 696, issue of November 16, and page 752.

December 9. American Federation for Clinical Research. Page xiv, issue of November 9.

December 13, and January 3 to April 25. Metropolitan State Hospital. Page 508, issue of October 5.

December 14. Some Aspects of Gastric and Duodenal Pathologic Conditions with Particular Reference to the Correlation of Physician and Surgeon. Dr. L. S. McKittrick. Pentucket Association of Physicians. 8:30 p.m. Haverhill.

January 20 and 21. Forum on Allergy. Page 638, issue of November 2.

February 3. American Board of Obstetrics and Gynecology. Page 696, issue of November 16.

February 19. American Board of Internal Medicine. Page 436, issue of September 21.

May 22–24. Hotel Statler, Boston. Annual meeting of the Massachusetts Medical Society.

September 17. American Public Health Association. Page 752.

District Medical Societies

PLYMOUTH
January 18. Brockton Hospital, Brockton.
February 15. Jordan Hospital, Plymouth.
March 15. Goddard Hospital, Brockton.
April 26. Toll House, Whitman.
May 17. Lakeville Sanatorium, Lakeville.

All meetings will be held at 11 a.m.

SUFFOLK
December 7. Censors' meeting.

WORCESTER
December 13. Worcester City Hospital.
January 10. St. Vincent Hospital, Worcester.
February 14. Worcester State Hospital.
March 14. Worcester Memorial Hospital.
April 11. Hahnemann Hospital, Worcester.
May 9. Annual meeting.

Channing Sanitarium

Established 1879

A pleasant country community of cottages built for the homelike care and treatment of nervous patients. Separate cottage for the care of convalescent nonmental patients.

Occupational therapy. Tennis court. Sports building.

Jackson M. Thomas, M.D., *Superintendent* Clifford G. Rounsefell, M.D., *Resident Physician*

WELLESLEY, MASSACHUSETTS

Telephone — Wellesley 0464

Washingtonian Hospital

41 WALTHAM STREET, BOSTON, MASS.
Founded 1841

A non-profit-making, endowed institution reorganized, for the
MODERN TREATMENT OF MEN SUFFERING FROM ACUTE OR CHRONIC
ALCOHOLISM

Joseph Thimann, M.D., *Medical Superintendent*
Merrill Moore, M.D., *Director of Research*
Visits by Psychiatric and Neurological Staff Consultants in Medicine, Surgery and the Specialties
Rates Moderate
For information: consult the Medical Superintendent
Telephones: HAN 1750 and 1751

Bournewood Hospital

300 SOUTH STREET, BROOKLINE, MASS.

Established 1884

For a limited number of cases of mental and nervous diseases

POST OFFICE, CHESTNUT HILL

Telephone PAR 0300

George H. Torney, M.D.

MICHELL FARM

Announces a New Service

In Hediger Hall, on the scenic Michell Farm grounds, we now have accommodations for a limited number of elderly ladies needing some supervision and medical care in a homelike atmosphere.

Information on Request

Address:
MICHELL FARM
106 North Glen Oak Ave. Peoria, Illinois

The rooster's legs are straight.

The boy's are not.

The rooster got plenty of vitamin D.

Fortunately, extreme cases of rickets such as the one above illustrated are comparatively rare nowadays, due to the widespread prophylactic use of vitamin D recommended by the medical profession.

One of the surest and easiest means of routinely administering vitamin D (and vitamin A) to children is MEAD'S OLEUM PERCOMORPHUM WITH OTHER FISH-LIVER OILS AND VIOSTEROL. Supplied in 10-cc. and 50-cc. bottles. Also supplied in bottles of 50 and 250 capsules. Council Accepted. All Mead Products Are Council Accepted. Mead Johnson & Company, Evansville 21, Ind., U. S. A.